



## **STS CONSULTANTS, LTD.**

**Parcel 1 Completion Report  
400 East Illinois Street  
Chicago, Illinois**

MCL Companies  
455 E. Illinois Street, Suite 565  
Chicago, Illinois 60611

STS Project No. 1-27313-XC  
December 10, 2007





**STS CONSULTANTS**

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December 10, 2007

Ms. Verneta Simon  
US Environmental Protection Agency - Region 5  
77 W. Jackson Blvd., SE-5J  
Chicago, Illinois 60604-3590

RE: Revised Parcel 1 Completion Report for MCL Companies Project, 400 East Illinois Street,  
Chicago, Illinois - STS Project No. 1-27313-XC

Dear Ms. Simon:

Enclosed please find four copies of the finalized Parcel 1 Completion Report for the removal of radiologically-impacted fill soil at the above referenced Site.

Please contact us with any questions you may have regarding this report or any other aspects of the project.

Sincerely,

STS CONSULTANTS, LTD.

Steven C. Kornder, Ph.D.  
Project Manager

Douglas J. Hermann  
Principal

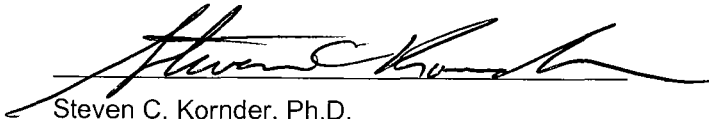
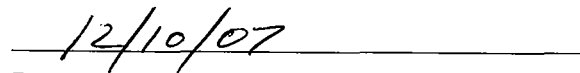
Attachment: Parcel 1 Completion Report



**THE INFRASTRUCTURE IMPERATIVE**

## AFFIDAVIT

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

  
Steven C. Kornder, Ph.D.  
Project Manager  
Date

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US Environmental Protection Agency  
STS Project No. 1-27313-XC  
December 10, 2007

**COMPLETION REPORT FOR PARCEL 1  
400 EAST ILLINOIS STREET  
CHICAGO, ILLINOIS**

## **1.0 INTRODUCTION**

This Parcel 1 Completion Report was developed to document the radiological surveying and removal of radiologically-impacted fill soil from the properties formerly known as Parcels K and 21 (Figure 1). The properties were surveyed for radiological impacts and/or remediated as part of a commercial and residential development project. As part of the development, the property was re-platted, subdivided and is currently known as Parcels 1 and 2 (refer to Figure 2).

The initial construction activities consist of the development of a 4-level underground parking structure, a residential high rise tower, and commercial/retail space along the western boundary of Parcel 1. Future plans also include a second residential high rise tower in the northeast corner of the property (Parcel 2). Based on our understanding, the USEPA has agreed to issue separate "Certification of Completion Letters" for each parcel. Therefore, this Parcel 1 Completion Report documents the radiological surveying and remediation activities performed in conjunction with the development of Parcel 1.

The work documented in this Parcel 1 Completion Report was conducted in general accordance with the procedures outlined in the Work Plan for Investigation and Removal of Radiologically-Impacted Fill Soil on Parcel K and Parcel 21 (Work Plan) prepared by STS Consultants, Ltd. (STS) dated September 1, 2005, revised November 21, 2005, and approved by the USEPA in correspondence dated December 16, 2005. A copy of the United States Environmental Protection Agency (USEPA) approval letter and the Administrative Settlement and Order on Consent for Removal Action (Docket No. VW-05-C-83) are included in Appendix A. That work is now complete with the last of the small areas of uninvestigated soil in the northwest corner of the Site having been screened to native sand on September 7 and 8, 2007. Thus, we will request that USEPA prepare a "Certification of Completion Letter" acknowledging the completion of the investigation and removal of radiologically-impacted historical fill soil discovered on the entirety of Parcel 1. This "Certification of Completion Letter" is requested to acknowledge that conditions at the Site are protective of human health and the environment, and if applicable, that no further remediation is necessary.



## **2.0 BACKGROUND**

### **2.1 Site Location**

Parcels 1 and 2 (Site) are bounded by East Illinois Street, North McClurg Court, East Grand Avenue and Peshtigo Court in Chicago Illinois (Figure 2). The Site consists of two adjoining parcels covering approximately 2.9 acres. The western portion of the Site was an asphalt-paved parking lot formerly known as Parcel 21 (approximately 0.9 acres). The eastern portion, known formerly as Parcel K, is comprised of approximately 2 acres. Parcel K was covered by an asphalt-paved parking lot with a landscaped park area on the east portion of the parcel. Prior to utilization as a parking lot, the former Kraft building occupied the eastern and southern most portions of Parcel K (Figure 1).

### **2.2 Site History**

The Site is located in an area of reclaimed land where fill material was placed along the Lake Michigan shoreline starting in the 1860s. Several properties north of the Chicago River in the Streeterville neighborhood of Chicago, Illinois have been found to exhibit evidence of radiological-impacts from the former processing of thorium-bearing mineral sands by Lindsay Light and Chemical Company (Lindsay Light). Lindsay Light facilities operated in Streeterville at 22 West Hubbard, 316 East Illinois, and 161 East Grand. The radiologically-impacted fill material was generated during the production of gas mantles, which used thorium in its manufacturing process. These manufacturing operations were conducted from the 1900s through the mid 1930s. The radiological impacts consist of elevated concentrations of thorium, uranium and their radioactive decay products.

STS conducted Phase I Environmental Site Assessments (Phase I ESAs) at Parcel 21 and Parcel K, which are summarized in STS's reports dated April 4 and April, 12, 2002, respectively. The Phase I ESAs included review of Sanborn Fire Insurance Maps dating from 1891, 1903, 1906, 1927, 1950, 1975 and 1988. The Site was used as an open lumber yard and mill works facility between 1891 and 1906; as vacant land with a railroad track (spur) crossing the central portion of the Site in 1927 (refer to Figures of Attachment A in Appendix C of the Work Plan). Since 1949, the western portion of the property (Parcel 21) has been used as a parking lot. Parcel K was developed in 1937 with a 9-story masonry building (with a one-level basement) by Kraft Cheese Company for use as a cheese/salad dressing factory and cold storage warehouse. The building was occupied by the City of Chicago for use as office space from 1978 through 2000, and was demolished in 2003. Since 2003, Parcel 21 has been maintained as a parking lot and Parcel K has been predominantly utilized as a parking lot with a landscaped area at the eastern boundary.

### **2.3 Building Demolition**

The aboveground portions of the former Kraft building were demolished in late 2003. The subsurface portions of the basement (i.e., walls and floor) were left in-place. The basement floor slab was left in-place, but broken up to prevent water from being retained within the former foundation. The inorganic demolition debris (i.e., concrete, brick, etc.) from the building were utilized to fill the basement foundation. The demolition fill material was covered with a gravel base course, graded and surfaced with asphalt to allow utilization of the area as a parking lot.

The demolition debris utilized for fill within the former foundation did not contain historical fill material derived from other portions of the property or adjacent sites that could potentially contain radiologically-impacted fill. Thus, radiological surveying of the debris within the former foundation was not necessary during the excavation activities. However, since the former Kraft building was built in 1937, it was not confirmed conclusively whether historical fill was present beneath the basement floor. Although, the basement floor survey (URS, July 2003) indicated no evidence of radiological-impact, the basement floor could have provided a shielding effect. Therefore, visual verification of the absence of historical fill, and radiological surveying, if historical fill material was present, were proposed during the removal of the former basement slab/foundation.

### **3.0 HISTORICAL RADIOLOGICAL SURVEYS**

#### **3.1 Historical Survey Results**

##### **3.1.1 Initial Walk-Over Survey Results**

The surface of the parking lots in Parcel 21 and Parcel K were initially surveyed over a three day period in late September 2000 by STS. Representatives from the USEPA were present during the majority of the survey field time and conducted their own walk-over survey. The STS walk-over survey consisted of two components, a gamma measurement on a 5-meter grid and a gamma scan for elevated readings within each 5-meter grid cell (STS, November 2000).

Elevated gamma readings were defined as readings that exceeded the general background values by a factor of two or more. Background values for the Site using a Ludlum 2221 meter with a Ludlum 44-10 2-inch x 2-inch NaI probe ranged from 4,650 to 6,800 counts per minute (cpm). The north lot, located in Parcel K did not exhibit an area with distinct indications of radiological impact as was noted in the west lot (Parcel 21).

During the course of surface surveys in Parcel 21, STS and the USEPA measured (unshielded) elevated gamma readings over asphalt-paved surfaces on the order of 80,000 and 58,000 cpm, respectively. These measurements were observed in the northwest quadrant of Parcel 21 (West Lot). The clean-up threshold specified by USEPA is 7.1 picoCuries per gram (pCi/g) total radium (Ra 226 + Ra 228). Ludlum 2221 meter readings (with Ludlum 44-10 2-inch x 2-inch NaI probe) for soil at 7.1 pCi/g were about 20,000 cpm. The STS sampling grid and gamma measurements for Parcel 21 and for the parking lot portion of Parcel K were included in the surveying plan (refer to Figures 2A and 2B in Appendix A of the Work Plan). A copy of USEPA results is also included in the Work Plan in Attachment B of Appendix A.

In June of 2003 URS Corporation (URS) conducted a gamma radiation surface survey and radiological soil sampling of the exterior north lot (Parcel K) adjacent to the Kraft Building and the basement floor within the building for the presence of elevated levels of radioactive materials (URS, July 2003). Results of the surface survey for the north lot in Parcel K were less than 2-times the background level criterion. URS also used a direct-push hydraulic rig (Geoprobe™) to collect soil/fill samples within 4-feet of ground surface for total radium analysis. A total of ten soil samples were obtained from the parking lot during the June 2003 URS survey (refer to Appendix A of the Work Plan). The URS soil analysis did not detect total radium at levels in excess of the USEPA cleanup level of 7.1 pCi/g total radium. Thus, the surface survey and soil sampling conducted by URS in the north lot did not observe readings that would be characteristic

of radiological impacts. However, in correspondence dated August 22, 2003, the USEPA indicated that the results of the surface gamma survey and the soil analysis did not conclusively rule out the presence of radiologically-impacted fill since surface obstruction (asphalt pavement) limited the extent of the surface survey and soil samples were not collected from the full depth of the underlying fill material.

### **3.1.2 Down-hole Survey Project**

Results of the surface gamma surveys of the Parcel K and Parcel 21 were used to develop an approach for a down-hole radiation survey. A copy of the down-hole survey work plan (STS, May 2005) was submitted to the USEPA for review prior to the work being initiated. The results of the down-hole investigation were included in the Work Plan (STS, November 2005). The down-hole work plan proposed to evaluate the potential presence of radiological-impacts in the geotechnical borings which were distributed evenly across the Site including five borings through the demolition debris-filled basement of the former Kraft building as well as four borings located specifically in areas where the previous surface walk-over gamma surveys observed elevated gamma readings that could potentially be indicative of radiologically-impacted fill. Figure 3 indicates the approximate down-hole boring locations.

#### **3.1.2.1 Down-hole Survey Results**

The down-hole radiation surveys for the soil borings were conducted between May 18 and June 10, 2005. The USEPA was present and observed the installation of the boreholes and down-hole gamma surveying. All borings were drilled with a nominal 4.25-inch diameter hollow stem auger. A 3-inch diameter Schedule 40 PVC casing was installed in each hole, and gamma readings were taken in 6-inch increments extending into the native soil. The gamma logging was conducted with a Ludlum 2221 raterscaler and a 2 x 2 NaI probe. The probe was equipped with a 1-inch thick lead end cap and a ¼-inch lead ring at the lower end of the probe to minimize the influence of adjacent and deeper radioactive materials on the gamma readings (i.e., maximum lateral sensitivity in the survey).

In general, the borings completed outside of the former building foundation indicated that the Site consisted of about 6-inches of asphalt and gravel base course followed by between 8.5 to 14 feet of historical fill (average of about 10 feet of historical fill material), while borings within the former foundation indicated 10 to 15 feet of fill dominated by crushed brick and concrete which is characteristic of demolition debris from the former Kraft building. Review of the down-hole gamma count information (refer to Work Plan Table D-1 of Appendix D) indicated that seven of the twenty borings surveyed had one or more gamma counts above the value of 7,633 counts per 30-seconds which corresponded to the USEPA cleanup limit of 7.1 pCi/g total radium (i.e., borings B-1, B-2, B-3, B-5, B-6, B-10 and DH-1).

The gamma survey results also indicated that only two borings (B-3 and DH-1) exhibited gamma readings above 15,266 counts per 30seconds (twice the USEPA cleanup threshold). These results included a 30-second gamma count of 30,238 at boring B-3 (4.5 feet bgs) and 83,222 at boring DH-1 (1.0 feet bgs). The gamma radiation counts at borings B-3 and DH-1 were well above the 30-second count of 7,633 which corresponds to the USEPA cleanup limit of 7.1 pCi/g total radium. Of the five remaining borings that exhibited gamma readings slightly above the threshold value of 7,633 counts per 30-seconds, only B-6 (10,597 counts per 30-sec.) and B-10 (11,574 counts per 30-sec.) were more than 10% above the threshold. The debris observed at boring B10 (which was located within the footprint of the former Kraft building) was dominated by brick fragments. The presence of brick debris at boring B-10 is consistent with the information that the former basement was filled with demolition debris from the former Kraft building. Clay brick is known to potentially exhibit levels of gamma radiation above typical soil background values. Therefore, the gamma readings observed at boring B-10 appeared to be attributable to the brick debris observed. Excluding boring B-10, the remaining borings with elevated gamma readings were located on Parcel 21.

### **3.1.2.2 Down-hole Survey Conclusions**

Down-hole gamma survey results within the former north parking lot of Parcel K (lot adjacent to the former Kraft building) did not indicate readings characteristic of impacted fill. The down-hole gamma survey results completed within the former basement did not indicate elevated gamma readings within the demolition debris from the former Kraft building (material used to fill the building's foundation) with the exception of boring B-10. Boring B-10 exhibited elevated gamma readings in a zone dominated by brick debris. The elevated gamma readings observed at boring B-10 were attributed to the brick debris and subsequently confirmed by future test pitting efforts (refer to Section 4.3).

From review of down-hole survey results (presented in Table 1 of the Work Plan), borings B-1 and DH-1 are located in close proximity to each other and the elevated gamma reading at each boring suggests that the radiologically-impacted fill at DH-1 may trend in the direction of B-1. Similarly, borings B-2, B-3 and B-6 were located within the southwest quadrant of Parcel 21 to evaluate this trend. Examination of the gamma readings for these borings also indicates that the maximum observed readings occurred at comparable depths (i.e., 3 to 5 feet below ground surface - bgs). Thus, although the soil sample collected at boring B-3 did not confirm radiologically-impacted fill, the gamma readings in the southwest quadrant suggested that radiologically-impacted fill may be present and that further investigation was warranted.

#### **4.0 WORK PLAN RADIOLOGICAL SURVEYING AND REMOVAL ACTIVITIES**

The USEPA approved Work Plan (STS, Nov. 2005) divided the proposed field investigation into three primary phases or categories. The initial phase was to remove the asphalt pavement and complete a gamma survey of the exposed surface as well as conduct test pitting at the down-hole investigation borings B-3, B-6 and B-10. Test pitting at borings B-3 and B-6 was proposed to determine if radiologically-impacted fill was present in the southwest quadrant of Parcel 21, while the test pit at B-10 was conducted to verify that the elevated gamma readings at B-10 were attributable to the brick observed in the borehole cuttings.

The second phase of the field activities included the removal of the radiologically-impacted fill identified in the initial phase as well as surveying of the historical fill soil in 18-inch lifts in areas where radiologically-impacted fill soil had not been identified. The final phase of the Work Plan activities included the surveying of construction related work. Specifically, this included test pitting for caissons and slurry walls, the mass excavation of soil for the underground parking facility and tower, and the installation of utilities.

Early in the project, a decision was made to conduct the asphalt removal, surface gamma surveys and subsequent 18-inch lift surveys in staged fashion (i.e., not to remove all the asphalt from the Site at once) to minimize the issues associated with muddy conditions due to winter weather (rain or snow). This allowed vehicles and equipment to remain staged primarily in paved areas which improved the movement of equipment around the Site and minimized the potential for the tracking of mud onto City streets. Thus, in reality, the three work phases were basically conducted simultaneously.

The remaining sections of this report document the radiological surveying activities and the removal actions associated with radiologically-impacted fill identified as conducted and generally outlined in the Work Plan (STS, Nov. 2005). The Work Plan and construction related activities covered by this report were performed between January 2, 2006 and March 2, 2007.

##### **4.1 Site Work Documented Through Monthly Progress Reports**

The work completed in the course of this report was documented through monthly progress reports submitted to USEPA. These progress reports described the work completed each month, and described the work planned for the upcoming month. The monthly progress reports also included the analytical results for both personal air monitors (PAMs) and for the high volume perimeter air monitors. The analysis results for the routine soil samples were not included in the monthly reports. The soil analyses for the verification samples were submitted with the request for USEPA sign-off of successful remediation

and therefore were not included with the monthly progress reports. The monthly reports are on file with USEPA and are not included as an attachment in this Parcel 1 Completion Report.

#### **4.2 Site-Wide Grid System**

A site-wide grid system was established to document the removal and surveying work using a network of 5 x 5 meter square grids. The site-wide grid network was identified by numbers 1 through 38 which ran from west to east and letters A through N from north to south. Figure 2 presents a drawing of the Site and the grid network.

#### **4.3 Test Pitting at Boring B-3, B-6 and B-10**

On Tuesday January 3, 2006 the parking lot was closed and construction fence was installed around the perimeter of the Site. On Wednesday January 4, 2006 site-specific project training and associated health and safety issues were reviewed with the project personnel. A test pit was excavated within the former building foundation at boring location B-10 to confirm that the elevated readings observed at B-10 during the down-hole gamma survey were related to the demolition debris (i.e., brick) from the former Kraft building (refer to Figure 3 for boring locations). Elevated gamma readings were observed at a depth of about three feet where a substantial number of whole bricks and crushed brick material was uncovered. Several of the beige and red bricks were removed from the excavation and placed on the asphalt paving. Gamma readings indicative of an exceedance of the USEPA cleanup criteria were only confirmed for the beige bricks. After consultation with the USEPA, samples of the crushed red and beige bricks were collected for NUTRANL analysis. The results (Table 1) confirmed that the beige brick exceeded the USEPA cleanup criteria.

**Table 1**  
**NUTRANL Analysis of Brick Samples**

<b>Sample Date</b>	<b>Sample Group</b>	<b>Description</b>	<b>Total Radium Activity</b>
1/5/2006	21K B10 Test Pit	Beige Brick 1	12.6
1/5/2006	21K B10 Test Pit	Beige Brick 2	12.99
1/5/2006	21K B10 Test Pit	Red Brick 1	3.67
1/5/2006	21K B10 Test Pit	Red Brick 2	3.13

Based on the field observations, both STS and USEPA agreed that the gamma readings observed within the former building foundation at boring B-10 were associated with the brick demolition material from the former Kraft building. Since the radiological properties of the beige brick are regarded as naturally occurring, they were not considered a radiologically-impacted fill by the USEPA. The USEPA and STS

also agreed that completion of a surface gamma survey after removal of the asphalt over the former Kraft building foundation or surveying within the Kraft building demolition debris was not practical due to radioactivity from the brick material. Therefore, gamma surveys were not required by the USEPA within the boundaries of the former Kraft building foundation (i.e., within the foundation walls and above the former basement floor). However, it was agreed that gamma surveys would be conducted after removal of the basement floor if historical/urban fill was observed to be present below the basement slab and above the native sands.

On Thursday January 5, 2006 two test pits were excavated in the vicinity of former borings B-3 and B-6. These test pits were performed to investigate the potentially anomalous gamma readings observed during the down-hole investigation project in the southwestern portion of the Site. At test pit B-3, gamma readings appeared to increase with depth and reached about 32,000 counts per minute (cpm) at a depth of about three feet (versus a cutoff value of 18,870 cpm for the Ludlum instrument which had been calibrated to 7.1 pCi/g total radium). Two samples for NUTRANL analysis was collected at the three foot depth, but the results (4.76 and 4.64 pCi/g total radium) were less than the USEPA cleanup level of 7.1 pCi/g (refer to Appendix B). Thus, the NUTRANL analysis suggested that the radiologically-impacted fill may had not yet been reached in the test pit (i.e., may be at a greater depth). The B-6 test pit was excavated to a depth of five feet. Gamma readings within the test pit B-6 reached a maximum of 17,900 cpm at a depth of about 3.5 to 4 feet. Two NUTRANAL samples which were collected from the zone of the highest readings were also below the USEPA cutoff (3.07 and 1.01 pCi/g total radium), but the elevated readings suggest that radiologically-impacted fill is likely present in the vicinity of the test pit.

#### **4.4 Asphalt Removal and Radiological Surveying**

The removal of asphalt and base course material was initiated on Thursday January 5, 2006 following the completion of the test pits. Surface gamma surveys were completed following removal of the asphalt and again after removal of base course material, if present. Asphalt and base course removal and surface gamma surveying was initiated in the southwest corner of the Site (Parcel 21) and continued through the end of the week. As indicated previously, a decision was made to conduct the asphalt removal and lift surveying in a staged fashion. Basically, the asphalt removal, surface surveying and lift surveying were conducted in small sections starting in the western portion of the Site and moving to the east. This allowed vehicles and equipment to remain primarily on paved areas and minimized potential mud related issues both on and off-site. The surface gamma surveys and subsequent lift surveys identified several areas of radiologically-impacted fill that were not previously identified and required remediation (refer to Section 4.5). Figure 4 shows the locations where radiologically-impacted fill was identified that subsequently required remediation.

The excavation of radiologically-impacted fill was conducted in the northwest corner of the Site in the vicinity of the boring DH-1 starting the week of January 9, 2006. Site activities alternated between asphalt stripping/surface surveying and remedial excavation depending on the availability of shipping containers for radiologically-impacted fill. Approximately 75% of the asphalt and base course (including that within the former Kraft building footprint) was removed and surveyed in January 2006. The remainder of the asphalt and base course surveying was completed before the end of March 2006.

Radiological surveying of the historic fill in 18-inch lifts down to the native sand layer was initiated in March 2006 within the footprint for the proposed western tower (i.e., southwest corner of the Site). For the remainder of the project, radiation surveying in 18-lifts to the native sand was the primary focus of the field activities. However, Site activities would occasionally switch to remediation when radiologically-impacted fill was discovered by the lift surveying.

The majority of the 18-inch lift surveying to the native sand for the Parcel 1 portion of the Site was completed by August 2006 with the exception of five relatively small areas. Lift surveying for the last area located inside the garage slurry wall (grid coordinates 6-8/B.5-C) was completed on December 8, 2006 while the surveying of an area north of the garage at grid coordinates 25-26.5/A-A.5 was completed on January 10, 2007. The last of the unscreened areas were located in the northwest corner of Parcel 1 (i.e., in the retail portion of the development). The upper portions of these areas were previously screened, but from one to four additional 18-inch lifts were necessary to complete the screening to native sand. A portion of this area located at A-B/4-6.25 was screened on June 27, 2007 with the remaining areas screened to native sand on September 7 and 8, 2007. No elevated gamma reading indicative of radiologically-impacted soil were observed in either the June or September screening events. Thus, the screening and/or remediation of Parcel 1 was completed on September 8, 2007.

#### **4.5 Removal Procedures for Radiologically-Impacted Fill Soils**

##### **4.5.1 USEPA Cleanup Level**

The cleanup limit established for Chicago's Streeterville area by USEPA is 5 pCi/g of total radium (Ra-226 + Ra-228) above the background radium activity. The background total radium activity for the area was specified by USEPA as 2.1 pCi/g. Thus, the cleanup threshold for the Site was established at 7.1 pCi/g total radium.

#### **4.5.2 Procedures for Verifying Successful Remediation**

In the course of radiological surveying, gamma readings characteristic of material exceeding the cleanup limit were encountered during surface and 18-inch lift surveys. Initial actions included establishment of an exclusion zone at each of the elevated reading locations and notification of USEPA. The exclusion zones were marked with paint, and magenta and yellow radiation zone rope was used to delineate the perimeter. Entry into exclusion zones was limited to persons in proper personal protective equipment (PPE), in accordance with the Health and Safety Plan included in the Work Plan (STS, November 2005).

At each of the exclusion zones, the radiologically-impacted fill soil was removed to apparently clean limits by loading the material directly in shipping containers. Upon reaching the apparently clean limits, a “pre-EPA” survey and sampling was conducted by STS to show that the area met the cleanup standard. Each survey area was limited in size to an area no greater 100 square meters. After completion of the “pre-EPA” survey, the USEPA was notified and mobilized to the Site to conduct a verification survey of the exclusion zone. The USEPA survey areas were the same as those sampled as part of the “pre-EPA” survey sampling effort.

For the USEPA verification surveys, the survey area was divided into four quadrants. Five samples were collected from the each verification survey area (one sample from each of four quadrants and the fifth sample from the center of the area). These samples were combined to form a single composite sample. In accordance with the Work Plan SOP-223 (Verification Survey), the composite sample was homogenized by mixing the soil in a clean steel bowl, screened to minus ¼-inch, and five sub-samples (sample splits) were generated for radiological analysis. If the average of these five sub-samples was found to be less than the cleanup threshold of 7.1 pCi/g total radium, a notice of successful verification form was prepared for USEPA signature. The supporting analytical data and verification form were faxed to USEPA. After receipt and review, the USEPA signed the form and returned a faxed copy to STS, thus releasing the area for backfilling.

#### **4.5.3 Remedial Actions**

The excavation of the radiologically-impacted fill soil was initiated the week of January 9, 2006. The last load of radiologically-impacted fill soil was excavated on August 10, 2006. A total of 214.5 containers (“Baker boxes”) of material were loaded during this removal action (refer to Table 2). Site activities consisted primarily of the excavation of radiologically-impacted fill soil in the northwest and southwest corners of the Site (formerly Parcel 21). Copies of the signed successful verification forms are provided in

Appendix C. Figure 4 indicates the surface and subsurface locations where radiologically-impacted fill was remediated.

**Table 2**  
**Quantity of Radiologically-Impacted fill soil Removed (Monthly)**

<b>Date</b>	<b>Containers Loaded</b>	<b>Cumulative Project Total</b>
1/2/2006 - 1/27/2006	44	44
1/30/2006 - 2/24/2006	71	115
2/27/2006 - 3/24/2006	39.5	154.5
3/27/06 – 4/28/06	0	154.5
5/1/06 – 5/26/06	41	195.5
5/29/2006 - 6/30/2006	17	212.5
7/3/06 – 7/28/06	0	212.5
7/31/006 – 8/25/06	2	214.5
8/28/06 – present	0	214.5

The initial excavation of radiologically-impacted fill soil occurred in the northwest corner of the Site in the vicinity of boring DH-1. Excavation suggested that the impacted fill soils were thickest (reaching a depth of about 8 feet) in the northwest corner of the Site. Remediation activities during January 2006 primarily focused on the excavation of impacted fill soil in the northwest corner of the Site. Verification sampling of the western portion of the northwest corner was conducted on February 2, 2006, by the USEPA and subsequently released on February 3, 2006. Verification sampling in the eastern section of this excavation was conducted on February 23, 2006, and signed off by the USEPA on February 24, 2006 (refer to Appendix C).

Remedial activities in the southwest corner were initiated the week of February 13, 2006. Excavation began at the K-line of the remediation grid system and proceeded to the north. The excavation activities indicated that the radiologically-impacted fill gradually thinned to the north and was absent just north of the I-line of the grid network. Verification sampling for the base of the excavation from the K-line north as well as the northern and eastern sidewalls was conducted on February 23, 2006. The area was released by the USEPA on February 24, 2006. The two eastern-most areas of radiologically-impacted fill centered at grid points G.5/15 and E-20 were remediated the week of February 20, 2006. Verification sampling for these areas was conducted by the USEPA on February 23, 2006. USEPA signoff on these areas was obtained on February 24, 2006.

Site remediation activities in March consisted primarily of the excavation of radiologically-impacted fill soil in the southwestern portion of the Site. Verification sampling in the southern section of the corner (approximately K-M/2-6) was conducted on March 7, 2006 by the USEPA and subsequently released on March 8, 2006. Radiological surveying of the historic fill soil extending down to the native sand layer was initiated in March within the footprint for the proposed high rise (western) tower. This surveying occurred between grid lines H-M/2-9. This surveying identified an area of radiologically-impacted fill soil located between grid lines G-K.5/5-9. Verification sampling for this remedial excavation area was conducted on March 14, 2006 and signed off by the USEPA on March 15, 2006. One small area of impacted fill soil was identified at grid K.5/12 during surveying between grids H-M/9-12 within the proposed tower footprint in the southwest corner. Verification samples were signed off by the USEPA on March 15, 2006.

Remediation activities in May and early June consisted of the excavation of radiologically-impacted fill soil in the northwest corner, the southwest corner and along the western property boundary of the Site (refer to Figure 4). Remediation activities were extended to the property lines along East Grand Avenue, East Illinois Street, and North McClurg Court. During May the USEPA visited the Site several times to collect and conduct verification sampling activities in the western portion of the Site (refer to Appendix C).

In the northwest corner, near North McClurg Court and East Grand Avenue, construction required the installation of a temporary transformer pad and routing of electrical conduit within the ROW (refer to Section 7.0 for additional details). Remedial activities along the western property boundary (i.e., North McClurg Court) extended to, and in some cases beyond, the property line into the ROW. These efforts indicated that radiologically-impacted fill soil appears to be present within the North McClurg Court ROW adjacent to the Site. Gamma survey results beneath the concrete sidewalk, and after removal of the next 6-inches of soil/base course, did not indicate elevated readings. However, trenches dug in the transformer pad area indicated readings above the threshold. Following excavation, the maximum gamma readings in isolated areas of the trench sidewalls and trench floor ranged from 70,000 to 89,000 cpm, while typical trench values ranged from 25,000 to 35,000 cpm. The trench surfaces were lined with a heavy plastic sheeting to prevent direct contact with impacted fill soil. Following the installation of electrical conduit, these trenches were backfilled with concrete.

Surveying of the native sand in 18-inch lifts was initiated north of the former Kraft building foundation in July 2006 in preparation for the installation of the slurry wall for the garage. The intent of these survey activities was to lower the elevation of the garage portion of the Site to approximately 5 – 6 feet Chicago City Datum (CCD) or about 6 - 7 feet below the original parking lot surface elevation. On July 25, 2006 two small areas with gamma readings indicative of a radiological impact were discovered during the lift surveying process. The eastern-most area (i.e., grid lines E/19) was located at 7-feet CCD (about six feet

below the original parking lot surface) and was about 6 X 6 feet in size with a maximum gamma value of 90,000 cpm. The second (i.e., grid lines E/18¾) area was located at 8.5-feet CCD (4.5-feet below the original lot level) and was about 3 X 3 feet in size with a maximum gamma count of 24,000 cpm. On August 3, 2006 a small area (i.e., grid lines A½/10) of elevated gamma readings (23,000 cpm) was discovered while performing lift surveys. All three areas were marked as exclusion zones. These exclusion zone areas were remediated on August 7, 2006. Verification signoff from the USEPA for these areas was obtained on August 8, 2006.

On August 9, 2006 a 12 X 5 foot area with elevated gamma readings (32,000 – 50,000 cpm) was observed centered at grid location F½-G/14-15. The depth of the elevated readings was approximately 4-5 feet below the original parking lot grade. This exclusion zone was remediated on August 10, 2006. Verification signoff was obtained from the USEPA on August 10, 2006.

The majority of the remaining lift surveying and the remediation of all of the known radiologically-impacted fill soil at the Site were completed in August 2006. Between September 2006 and February 2007 radiological surveying was performed at two small areas within the Parcel 1 boundaries (grid coordinates 6-8/B.5-C and 25-26.5/A-A.5). Neither area exhibited elevated gamma readings. Thus, only three small areas in the northwest portion of Parcel 1 remained to be surveyed to native as of February 2007. A portion of the unsurveyed area located at A-B/4-6.25 was screened on June 27, 2007 with the remaining areas screened to native sand on September 7 and 8, 2007. No elevated gamma reading indicative of radiologically-impacted soil were observed. Thus, the screening and/or remediation of Parcel 1 was completed on September 8, 2007.

#### **4.5.4 Caisson Surveying**

In May 2006 test pitting at the proposed caisson locations was initiated. Test pit areas (7 x 7 foot) were dug out with an excavator in 18" lifts at proposed caisson installation locations. The soil was screened by personnel from Huber using a Ludlum 2221 meter and 2 x 2 NaI probe. The primary purpose of the test pitting activity was to remove any obstructions that could potentially interfere with the installation of the caissons. However, the test pitting also allowed the soil at caisson locations to be pre-screened for the potential presence of radiologically-impacted fill soil. In May 2006, radiological surveying was conducted at all but four caisson locations. Testing pitting (probing) at the remaining four caisson locations outside of the former Kraft building were completed in June. Radiological caisson pre-screening activities were performed at locations where soil remediation and/or surveying to the native sand had not occurred previously. Elevated gamma readings indicative of radiologically-impacted fill were observed at only one caisson located along the western property boundary (i.e., F.5/1.75 on the Site grid system). This area

(E-G/1.5-4.5) was remediated and verification sampling was conducted on May 25, 2006 (refer to Appendix C).

#### **4.5.5 Sheet Pile Wall Surveying**

Test pitting and radiological surveying were conducted in June of 2006 along North McClurg Court and East Illinois Street property boundaries in preparation for the installation of sheet pile for the high rise tower (western boundary). Test pitting for the northern and eastern sheet pile walls located on the interior of the Site (away from the property boundaries) was not required since these areas were previously surveyed during the lift and/or remediation activities. The test pitting along North McClurg Court between grid lines H and N.5 consisted of the excavation of the historical fill and upper two feet of native sand to verify the absence of obstructions. During the test pitting, radiological surveying was performed as well as remediation when necessary. The landscaped area in the ROW adjacent to the property line, which was about eight feet wide, was partially excavated to allow the test pitting to achieve the necessary depth and prevent radiologically-impacted fill soil if encountered from caving into the trench. As a result, the former landscaped area between the sidewalk and Site was excavated to a depth of at least four feet adjacent to the sidewalk, while the eastern half of the landscaped area located immediately adjacent to the property line was excavated and surveyed to the native sand.

Test pitting down to the native sand in the landscaped area between grid lines E and H along the property line was not required, but the landscaped area between the sidewalk and property line was excavated, surveyed and remediated, if necessary, to a depth of at least four feet. Gamma readings along the North McClurg Court property boundary and sidewalk ranged from 22,000 to 27,000 cpm. It should be noted that the landscaped area north of grid line E was excavated and remediated in association with the installation of a pad for the temporary transformers (refer to Section 4.5.6).

Finally, the areas within the North McClurg Court ROW where elevated gamma readings were observed and remained following the excavation activities have been documented on Figures 4. Additional discussion of the potentially impacted areas within the ROWs is provided in Section 7.0.

#### **4.5.6 Surveys for Utility Installations**

Remediation and surveying activities conducted along the North McClurg Court property line in the northwest corner of the Site indicated the potential presence of radiologically-impacted fill soil within the ROW. In the northwest corner, near North McClurg Court and East Grand Avenue, construction requires the installation of a temporary transformer pad and routing of electrical conduit within the ROW. After

discussion with the USEPA and the City of Chicago, an agreement was reached to conduct the remediation of the radiologically-impacted fill soil within the landscaped area in the northwest corner. In addition, it was agreed that construction activities within the ROW (i.e., sidewalk along McClurg) would dispose of radiologically-impacted fill excavated from within the ROW, but would not fully remediate these areas because of permit limitations and the absence of engineering controls that would be necessary for the excavation adjacent to the street.

During the last week of May, the northern portion of the landscaped area was remediated and excavated to native sand (i.e., north of the E line of the grid system). The USEPA was present to observe the excavation and conduct verification sampling. In conjunction with the remediation, the concrete sidewalk was removed between grid lines A.5-E/1-1.5. In addition to the sidewalk, the first 6-inches of soil were removed from this area to allow for the installation of a gravel base course for the temporary transformer pad. Piping trenches were also excavated for utility connections. Gamma survey results beneath the concrete sidewalk, and after removal of the next six-inches of soil, did not indicate elevated readings. However, trenches dug in the pad area indicated readings above the radiologically-impacted fill threshold. Following excavation, maximum gamma readings in isolated areas of the sidewalls and trench floor ranged from 70,000 to 89,000 cpm, while typical values ranged from 25,000 to 35,000 cpm. The trench surfaces were lined with a heavy plastic sheeting to prevent direct contact with radiologically-impacted fill soil. Following the installation of electrical conduit, these trenches were backfilled with concrete.

Construction activities required that the fire hydrant (refer to Figure 4) on East Illinois Street be relocated about 30-feet west of its original location. A 7 x 8 foot area was being excavated in the sidewalk for the relocation of the fire hydrant. During excavation on June 14, 2006 an area of radiologically-impacted fill soil was discovered. Much of the initial material removed from beneath the sidewalk was gravel. However, at a depth of about three feet historical fill was encountered that exhibited a gamma reading of about 21,500 cpm versus a cleanup threshold equivalent of about 19,000 cpm. Surveying within the excavation indicated that the south (East Illinois Street curb line) and east walls of the excavation was below threshold levels, but that the north (maximum of 45,000 cpm) and west (maximum of 35,000 cpm) walls exhibited gamma readings indicative of impacts. Upon discovery of the radiologically-impacted fill soil, the Water Department ceased excavation activities.

On July 24, 2006, installation of the hydrant resumed with Burdon performing the excavation and Huber providing radiological surveillance. Excavation proceeded until the water main was reached at a depth of about six feet. Unshielded gamma readings for the radiologically-impacted fill soil removed from the excavation ranged from 18,500 to 21,500 cpm (versus a threshold of 18,100 cpm). This soil was loaded directly into super sacks because of space limitations. The super sacks were then placed in a shipping

container available at the Site. Excavation activities resulted in the removal of three super-sacks of radiologically-impacted fill soil at approximately  $\frac{3}{4}$  yd<sup>3</sup> per super-sack.

Using a shielded probe, gamma readings within the proposed fire hydrant excavation were made following completion of the excavation. The gamma readings observed within the completed excavation were less than 5,000 cpm versus a shielded USEPA threshold equivalent of 5,900 cpm. Thus, the excavation did not appear to have elevated gamma readings present following the removal of the small quantity of radiologically-impacted fill soil. Despite the absence of elevated gamma readings, the excavation was lined with plastic to further minimize any potential contact with impacted fill soil. Excavation and surveillance was also conducted at the original hydrant location so that this hydrant could be removed from service once the new hydrant was installed. Excavation continued until the hydrant and main were uncovered. Gamma readings of the excavation and spoil at this location were below 11,500 cpm (versus the threshold limit of 18,100 cpm). Thus, there was no indication of an exceedance of the USEPA threshold at the original hydrant location. Per the City of Chicago Department of Environment (CDOE) permit requirement, a short report was prepared for each excavation and submitted by STS to the CDOE dated August 3, 2006.

In October 2006 radiological surveying of excavations within the ROW adjacent to the Site were completed for the installation of a gas line in East Illinois Street and for a water main in East Grand Avenue. Gamma readings above the USEPA threshold were not observed at either location. Per the CDOE permit requirement, short reports were prepared for each excavation and submitted by STS to the CDOE on October 26, 2006.

In late November 2006 a utility excavation was completed by ComEd and its subcontractors within North McClurg Court and the ROW adjacent to the Site. Specific details regarding the project were not provided to STS and/or MCL, but should have been transmitted to the Chicago Department of Environment (CDOE) in accordance with the ROW permit. However, STS is aware that approximately 2-3 yards of slightly-impacted fill soil was excavated from the sidewalk area of the ROW during the utility project.

A small hoist pad (approximately 15 x 15 feet) in the ROW along North McClurg Court (refer to Figure 4) was excavated on December 4 to a depth of 16-inches below the grade of the sidewalk. The maximum unshielded gamma count observed during the excavation was 14,000 counts per minute (cpm) versus a USEPA threshold of about 19,000 cpm. Thus, no indication of elevated gamma radiation levels was observed during the excavation activities. It should be noted that the hoist pad area is located within an

area that previously exhibited slightly elevated gamma readings at depth. However, the shallow hoist pad excavation did not extend deep enough to encounter these materials.

#### **4.5.7 Surveying Beneath the Former Kraft Foundation**

In July, removal of the former Kraft building foundation was completed. Historical fill materials beneath the former Kraft building foundations were not visibly noted and radiological surveying of the area after removal of the foundations did not indicate gamma readings indicative of radiologically-impacted fill.

## 5.0 QUANTITY OF RADIOLOGICALLY-IMPACTED FILL SOIL REMOVED

A total of 214.5 containers, each containing approximately 15 cubic yards, of radiologically-impacted fill were removed from Site during the remediation that was conducted within former Parcels K and 21 between January and August 2006. The weight of the radiologically-impacted fill soil is estimated to be about 20.5 tons per container based on weights measured during previous removal efforts. Therefore, a total weight of about 4397 tons was shipped off-site for disposal. The material was transported for disposal to Energy Solutions Clive Facility (fka Envirocare) in Clive, Utah. Table 3 provides a summary of the general remediation area and the number of containers of material excavated. Copies of the manifests for the containers of radiologically-impacted fill soil are provided on a compact disk (CD) in Appendix E.

**Table 3**  
**Quantity of Radiologically-Impacted Fill Soil Removed by Area**

<b>Date</b>	<b>Primary Location</b>	<b>Containers Loaded</b>	<b>Cumulative Project Total</b>
1/2/2006 - 1/27/2006	NW Corner Parcel 21	43	44
1/30/2006 - 2/24/2006	NW Corner Parcel 21	71	115
2/27/2006 - 3/17/2006	SW Corner Parcel 21	39.5	154.5
3/20/06 – 5/5/06	-	0	154.5
5/8/2006 - 6/9/2006	SW Corner Parcel 21	58	212.5
6/12/06 – 8/4/06	-	0	212.5
8/7/06 – 8/11/2006	E.5/14.5	2	214.5
8/14/2006 - 2/2007	-	0	214.5

## **6.0 RADIOLOGICALLY-IMPACTED FILL REMAINING ON-SITE**

No known radiologically-impacted fill remains on the Site. In light of the fact that the entirety of Parcel 1 has been excavated to native sand, there is no potential for impacted soil to remain on Site. Therefore, we request that the Certificate of Completion Letter be issued without deed restrictions or other restrictions limiting the future use of Parcel 1 at the Site.

## **7.0 RADIOLOGICALLY-IMPACTED FILL SOIL POTENTIALLY LOCATED OFF-SITE**

### **7.1 East Grand Avenue ROW**

Based on field instrumentation (Ludlum surveys), radiologically-impacted fill potentially remains adjacent to the Site primarily in the right-of-way (ROW) along North McClurg Court between East Illinois Street and East Grand Avenue (refer to Figure 4). In addition, two small areas with gamma readings only slightly above the cutoff value were identified in the ROW along East Grand Ave. The first is located in the northwest corner near East Grand Avenue and North McClurg Court, while the second is located about mid-block in the East Grand Avenue ROW near grid line 16. A maximum gamma reading of 22,000 cpm was observed within the excavation sidewall at each of the areas which only slightly exceeded the Ludlum threshold cutoff value (about 19,000 cpm) which is equivalent to the USEPA cleanup limit of 7.1 pCi/g total radium.

Both of the areas in the East Grand Avenue ROW are located beneath the sidewalk adjacent to the Site and were observed in vertical excavations made at the property boundary. An attempt to remove the material was not made due to concern with slope stability and the proximity of the area to the street. In the northwest corner the elevated readings were located at a depth of about 2-3 feet. A layer of plastic and plywood was placed along the property boundary since the area remained open for several weeks prior to being backfilled. The other area of slightly elevated gamma readings (20,000 – 22,000 cpm) was observed within a nearly vertical cut at the property boundary below the sidewalk at grid location A/16 (at a depth of about seven feet) on August 18, 2006. Two sheets of plywood were placed vertically along the excavation wall prior to backfilling to serve as a marker for the area. Neither area is within the immediate vicinity of any planned construction work and does not appear to pose a potential health threat based on the depth (absence of a potential for exposure) as well as the very low gamma levels noted. Furthermore, workers and public are protected by the Chicago Department of Environment permit process which is in effect for the Streeterville ROW areas and requires monitoring if these areas, or any other section of the ROW, were to be disturbed in the future.

### **7.2 North McClurg Court ROW**

Remediation and surveying activities conducted along the North McClurg Court property line indicated the presence of radiologically-impacted fill within the ROW. Near the corner of North McClurg Court and East Grand Avenue construction required the installation of a temporary transformer pad and routing of electrical conduit within the ROW. During the last week of May 2006, the northern portion of the landscaped area in the ROW along the property line was remediated and excavated to native sand (i.e.,

north of the E line of the grid system). In conjunction with the remediation, the concrete sidewalk was removed between grid lines A.5 and E as well as the first 6 inches of soil to allow for installation of a gravel base for the temporary transformer pad. Utility trenches were also excavated for utility connections. Gamma survey results beneath the concrete sidewalk and after removal of the next 6 inches of soil did not indicate elevated readings. However, trenches dug in the pad area indicated readings indicative of radiologically-impacted fill. Following excavation, maximum gamma readings in isolated areas of the sidewalls and trench floor ranged from 70,000 to 89,000 cpm, while typical values ranged from 25,000 to 35,000 cpm. The trench surfaces were lined with a heavy plastic sheeting to prevent direct contact with impacted fill. Following the installation of electrical conduit, the conduit trenches were backfilled with concrete.

In early June 2006, test pitting was conducted along the North McClurg Court property line in preparation for the installation of sheet pile wall for the high rise tower. The test pitting (between grid lines H and N) consisted of the excavation of the historical fill and the upper 2-feet of native sand to verify the absence of obstructions. During the test pitting, radiological surveying was performed as well as remediation, if necessary. The landscaped area in the ROW adjacent to the property line was partially excavated to allow the test pitting to achieve the necessary depth and prevent radiologically-impacted fill from caving into the trench. As a result, the landscaped area between the sidewalk and Site was partially excavated, and where necessary, remediated to a depth of four-feet. Immediately adjacent to the property line (i.e., about the first four-feet west of the property line), excavation of radiologically-impacted fill was conducted to the native sand. Test pitting down to the native sand between grid lines E and H along the property line was not required for installation of sheet pile, but the landscaped area between the sidewalk and property line was excavated, screened, and remediated to a depth of four-feet, if necessary,. Gamma readings along the North McClurg Court property line and sidewalk ranged from 22,000 to 27,000 cpm.

After completion of the test pitting/excavation activities, areas along the sidewalk that exhibited gamma readings indicative of radiologically-impacted fill were covered with heavy plastic sheeting ( no verification sampling was performed within these ROW areas). These excavated areas were then backfilled with soil from the Site to cover the plastic sheeting and effectively eliminate the potential for direct contact.

## **8.0 DIFFICULTIES ENCOUNTERED**

Only minor difficulties were encountered during the surveying or remediation of radiologically-impacted fills. Some of the difficulties included being able to efficiently import Baker boxes to the Site in order for excavation to continue at a scheduled pace. Additionally, frozen lids on some “Baker boxes” made them difficult to open during the winter months which lead to minor delays during the excavation process. Underground obstructions (i.e. concrete slabs, footings, etc.) from previous buildings also slowed excavation efforts. However, ultimately none of these difficulties have impacted the completion of the project.

## **9.0 ANALYTICAL RESULTS**

### **9.1 Soil Sample Radiological Analytical Results**

Soil samples collected during the remediation process were analyzed by Stan A. Huber, Inc. (Huber) by the NUTRANL analysis methodology to document the concentrations of the target cleanup radionuclides. The NUTRANL analyses for the samples are presented in Appendix B by laboratory number, which is also chronological. Samples collected for verification purposes by the USEPA were analyzed first by Huber and then transferred to the USEPA under chain-of-custody. Copies of the USEPA analytical results will be included in Appendix D when they are made available by the USEPA.

#### **9.1.1 Pre-verification Samples**

The process of verification of remediation in the exclusion zones generally involved the collection and analysis of pre-verification ("pre-EPA") samples to confirm that the removal actions had achieved the required cleanup levels. The impacted areas (exclusion zone) were divided into sections as the areas were remediated via the removal of the impacted fill. The exclusion zone was surveyed in areas not exceeding 100 square meters. The pre-EPA survey and sampling areas (i.e., pre-verification sample areas) were selected by the Field Team Leader (STS) and the Health Physics subcontractor (Huber).

#### **9.1.2 USEPA Verification Sample**

The USEPA verification areas were the same as the pre-EPA survey and sampling areas (i.e., pre-verification sample areas). USEPA conducted verification surveys and collected verification samples for the exclusion zones. In each exclusion area five samples were collected to create a composite for that area (i.e., one sample from each of four quadrants and a fifth from the center). The five samples forming the composite were then homogenized (mixed in a clean steel bowl) and five sub-samples were prepared. If the average of these five sub-samples was found to be less than the cleanup threshold of 7.1 pCi/g total radium, a successful verification form was prepared for USEPA signature. The supporting data and form were faxed to USEPA. Upon receipt of the signed form, the area was released for backfilling.

The NUTRANL results of the USEPA verification samples are included with copies of the signed notification of successful verification forms in Appendix B as well as in chronological order in Appendix C. These same samples were transferred to USEPA under chain-of-custody for analysis at its contract

laboratory. Those data will be included in Appendix D upon completion of the analysis and receipt of the data from the USEPA.

## **9.2 Air Monitoring Analytical Results**

### **9.2.1 Site Perimeter Air Monitoring**

Perimeter air monitoring for airborne radioactivity was required whenever excavation of radiologically impacted fill was being conducted. The Site is sufficiently large so that the monitoring at the perimeter would not characterize the potential airborne contaminants from work at discrete locations within the Site. Therefore, air monitoring locations were established at the perimeters of the excavation areas. Thus, the widespread distribution of the exclusion zone activities necessitated that area air monitoring equipment be repositioned for each excavation to comply with the air monitoring plan.

The air samples were analyzed the day after the collection and again after four days to allow for the short-lived progeny to decay. The daily and weekly air concentrations were compared to the most limiting effluent concentration limit for thorium-232, which is  $4\text{E-}15 \mu\text{Ci/ml}$  based on 10 CFR 20 Appendix B Table 2 (Effluent Concentration Limits). No exceedances of the exposure limit for the Site perimeter were documented for any day of monitoring. Perimeter air monitoring results are provided in Appendix F.

### **9.2.2 Personal Air Monitoring**

Personal air monitoring (PAM) was conducted for persons working in exclusion zones and those persons involved in the directing of the loading of material into shipping containers. PAM data for radioactivity for both one-day and four-day analyses are included in Appendix F. These data show no exceedances of the allowable exposure limits for this project.

## **9.3 Personnel Radiation Film Badge Results**

Personnel based on Site for extended periods during removal operations and particularly those personnel operating in the exclusion zones conducting gamma surveys or sampling, personnel assisting with the loading of the containers, and other persons potentially in contact with radiologically-impacted fill were monitored with Optically Stimulated Luminescence (OSL) film badges. Badges were replaced each calendar month. The analysis results for the badges used during the removal actions and for surveying for potentially radioactive materials are included in Appendix G. No exceedances of the allowable exposures were measured for personnel as reported.

#### **9.4 Equipment Release Surveys**

Excavating equipment used in the excavation of radiologically-impacted fill was required to be surveyed to confirm the equipment was free of radiological impacts prior to being released from the Site. This equipment was limited to the excavation buckets used to excavate and load the impacted fill. The remainder of the excavator equipment was not used within the exclusion zones. To confirm the absence of impacts, the treads and other portions of the equipment where soil had accumulated, were surveyed for contamination.

For the excavator buckets, wipes were also taken in accordance with STS SOP 345, and alpha counts were made to confirm the absence of contamination. The limits listed in SOP 345 were those of 32 IAC 340 Appendix A (33 dpm/100 cm<sup>2</sup>). However, in practice with “as low as reasonably achievable” (ALARA), the most restrictive federal level of 20 dpm/100 cm<sup>2</sup> for removable contamination from Table 1 of the Nuclear Regulatory Commission’s Regulatory Guide 1.86 was used for equipment release. A copy of the alpha count survey results were well below this most restrictive level and are included in Appendix H.

## **10.0 SUMMARY AND CONCLUSIONS**

The work documented in the Parcel 1 Completion Report was generally conducted in response to the Settlement Agreement, dated December 5, 2005, entitled "Administrative Settlement Agreement and Order on Consent for Removal Action at 400 E. Illinois fka 510 N. Peshtigo/Kraft Building, Parcel K and Parcel 21 Site Chicago, Cook County, Chicago, Illinois". The work described in this Parcel 1 Completion Report was conducted in accordance with the procedures outlined in the Work Plan for Investigation and Removal of Radiologically Impacted fill (Work Plan) prepared by STS Consultants, Ltd. (STS) dated September 1, 2005, revised November 21, 2005, and approved by the USEPA in correspondence dated December 16, 2005.

Based on our understanding, the USEPA has agreed to issue separate "Certification of Completion Letters" for each parcel. As a result of the implementation of the Work Plan, the historical fill on Parcel 1 has been surveyed to the native sand. This Parcel 1 Completion Report provides a summary of the remediation of radiologically-impacted fill soil subsequently identified as the result of radiological monitoring conducted during the implementation of the Work Plan activities. The work described in this report includes obtaining verification sign-off from USEPA for surveys of the areas at the Site where radiologically-impacted fill was remediated.

In conclusion, this Parcel 1 Completion Report and the work described herein, meets the work requirements of the December 5, 2005, Administrative Settlement Agreement and Order on Consent for Removal Action. Each of the radiologically-impacted areas identified on the Site during the period covered by this Parcel 1 Completion Report (January 2006 through February 2007) has been remediated and signed-off by the USEPA. As a result, STS Consultants (STS), Project Coordinator for this removal action, on behalf of MCL CDC P21, LLC, requests written approval by the USEPA of the Parcel 1 Completion Report for Parcel 1.

On the basis of the removal actions having been completed in accordance with the Work Plan approved by USEPA, and the verification by USEPA that no radiologically-impacted material remains in excess of the cleanup criteria, STS, on behalf of MCL CDC P21, LLC, requests that USEPA issue a Notice of Completion for Parcel 1 of the Site confirming that (a) all identified radiologically-impacted materials with levels of radioactivity in excess of the cleanup threshold standards set forth in the Work Plan have been removed from the site as required by the Work Plan, (b) that no further investigation, removal or cleanup action is required with respect to the radiologically-impacted materials, and (c) construction and development work on Parcel 1 of the Site may proceed without further regulatory requirements or deed restrictions relating to radiological impacts.

It is anticipated that Parcel 2 of the Site will be fully remediated and investigated at the time of development at some future point. Parcel 2 will remain subject to the AOC, prior to excavation and development.

## 11.0 REFERENCES

STS (November 20, 2000) Radiological Survey of the Three Parking Lots in the Vicinity of the Former Kraft Building, Chicago Illinois, STS Project No, 1-24418-XO.

STS (April 4, 2002) Phase I Environmental Site Assessments at Parcels 21, 24 and Market Place Foodstore, Illinois Street and McClurg Court, Chicago, Illinois, STS Project No, 1-24418a-YB.

STS (April 12, 2002) Phase I ESA at Parcels 21 and K, Chicago Illinois, STS Project No, 1-24418b-YB.

STS (May 12, 2005) Work Plan for Pre-Construction Radiation Screening, ParkView West Development, Northwest Corner of North Peshtigo Court and East Illinois Street, Chicago Illinois, STS Project No, 1-27313-XC.

STS (September 1, 2005, revised November 21, 2005) Work Plan for Investigation and Removal of Radiologically-Impacted Soil on Parcel K and Parcel 21, Chicago, Illinois, STS Project No, 1-27313-XC.

STS (August 3, 2006) Radiological Survey of Right-of-Way Utility Excavation, CDOE Permit No.: 613656997, STS Project No, 1-27313-XC.

STS (October 26, 2006) Radiological Survey of Right-of-Way Utility Excavation, CDOE Permit No. 628682381, STS Project No, 1-27313-XC.

URS (July, 2003) Gamma Detection Survey and Soil Sampling, Kraft Building North Parking Lot, Peshtigo Court, Chicago, Illinois.

URS (October 6, 2003) Letter Report Update of Phase I Environmental Site Assessment of Parcel K, Chicago Illinois, URS Project No. 52603-007-007.

URS (September 30, 2003) Letter Report Update of Phase I Environmental Site Assessment of Parcel 21, Chicago Illinois, URS Project No. 52603-004-007.

USEPA (November 13, 2000) Geotechnical Radiation Survey, 26-Acre Site, Southwest Corner of Wacker Drive and Lake Shore Drive, Chicago Illinois.

USEPA (March 23, 2001) Radiation Survey, 26-Acre Site, Southwest Corner of Wacker Drive and Lake Shore Drive, Chicago Illinois.

USEPA (December 5, 2005) Lindsay Light II Former Kraft Building/Parking Lot, Lindsay Light II OU 10 Administrative Settlement and Order on Consent for Removal Action, Chicago, Illinois.

USEPA (December 16, 2005) Lindsay Light II Operable Unit 10, 400 East Illinois fka 510 N. Peshtigo/Kraft Building, Parcel K and Parcel 21, Chicago, Illinois.

X:\PROJ\STS\127313XC\G127313XC-SITE\_MAP.dwg; 8/18/2005 1:23:26 F STRAHAN, BEN

N

McCLURG CT

GRAND AVENUE

PARCEL 21  
WEST LOT

PARCEL K  
NORTH LOT

BUILDING

PESHTIGO CT

PESHTIGO  
LOT

LAKE SHORE DRIVE

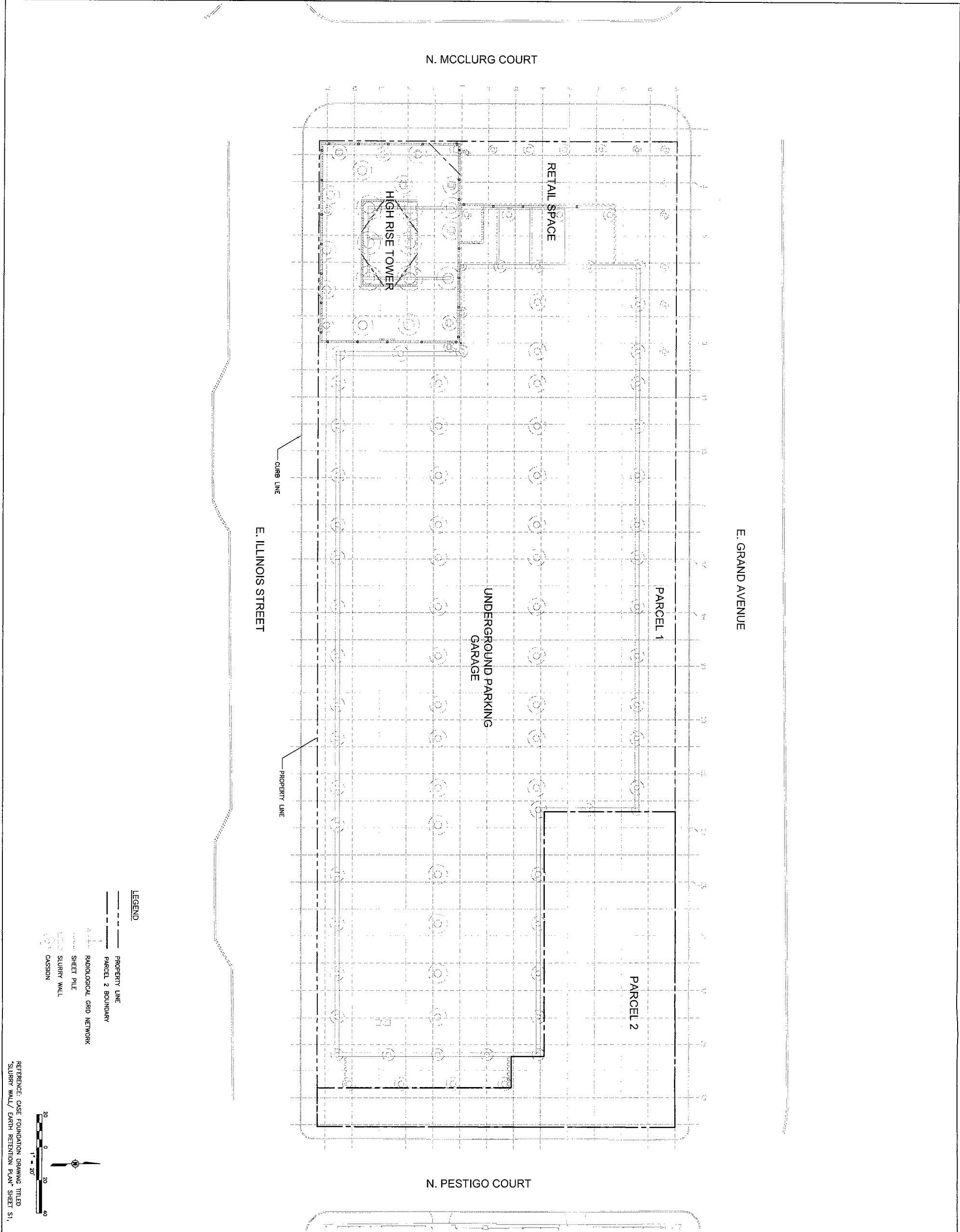
ILLINOIS STREET



**STS CONSULTANTS**  
750 Corporate Woods Pkwy.  
Vernon Hills, IL 60061  
847-279-2500  
www.stsconsultants.com  
Copyright ©2004, By: STS Consultants, Ltd.

**SITE LOCATION MAP  
PARCEL K AND PARCEL 21  
RADIOLOGICAL INVESTIGATION  
AND REMOVAL WORK PLAN  
CHICAGO, ILLINOIS**

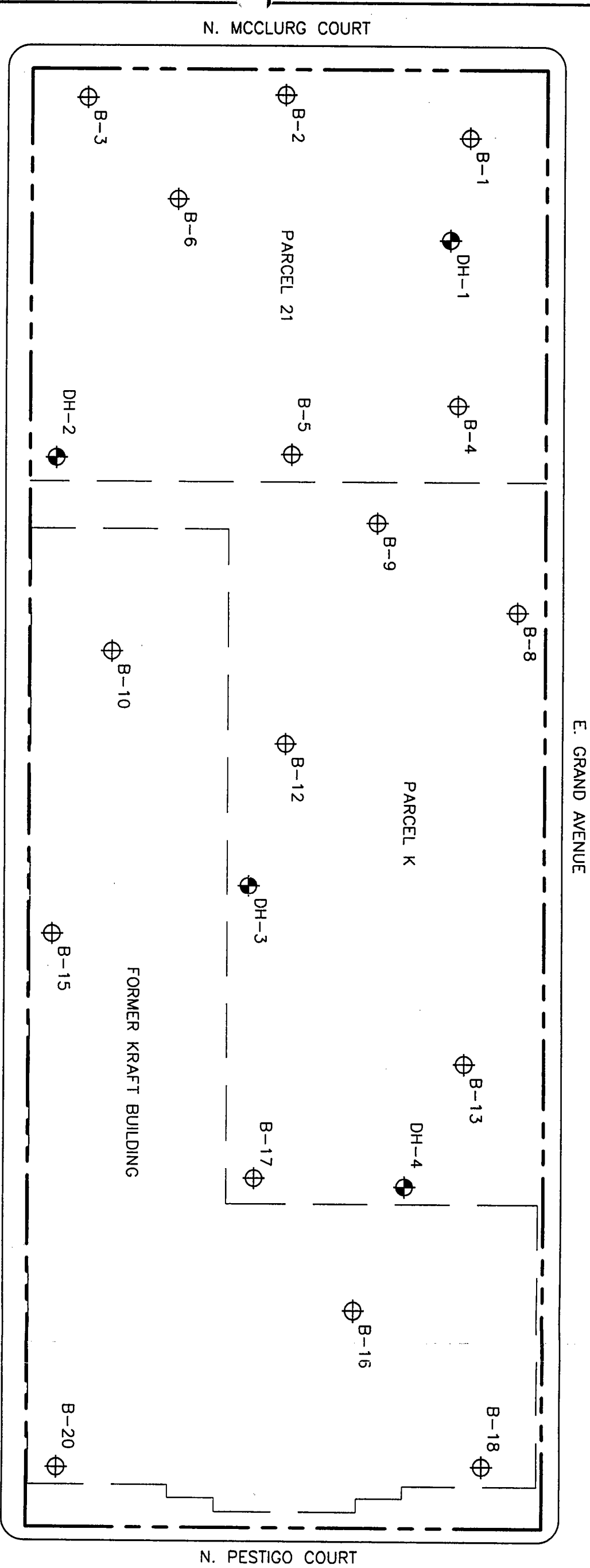
Drawn :	BWS 08/18/2005
Checked:	SCK 08/18/2005
Approved:	SCK 08/18/2005
PROJECT NUMBER	1-27313-XC
FIGURE NUMBER	1



SITE PLAN AND RADIOLOGICAL SURVEY GRID SYSTEM  
WITH THE PROPOSED CASSION AND EARTH RETENTION SYSTEM

PARCEL 1 AND PARCEL 2  
CHICAGO, ILLINOIS

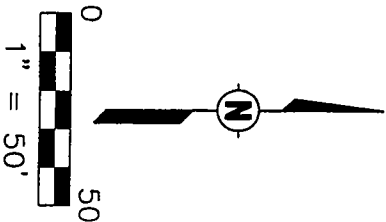
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SITE PLAN SHOWING LOCATIONS OF  
 DOWN-HOLE RADIATION SURVEY  
 PARCEL K AND PARCEL 21

LEGEND

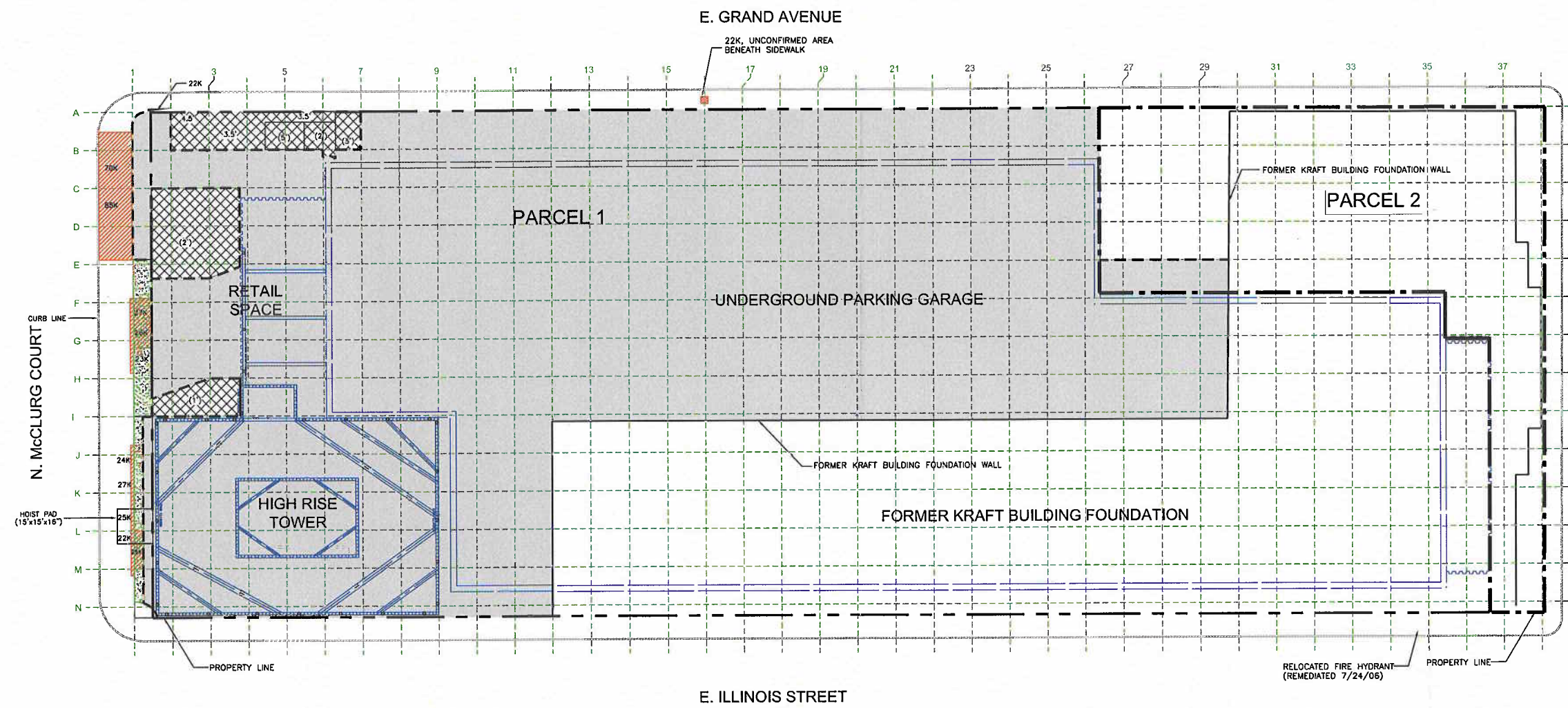
- ⊕ BORINGS WITH OFFICE OF UNDERGROUND CLEARANCE
- ⊕ BORINGS LIMITED TO DEPTH OF 12 FEET



Drawn:	BWS 08/18/2005
Checked:	SCK 08/18/2005
Approved:	SCK 08/18/2005
PROJECT NUMBER	1-27313-XC
FIGURE NUMBER	3



**SITE PLAN SHOWING AREAS RADIOLOGICALLY SURVEYED  
 AND/OR REMEDIATED TO NATIVE SAND  
 PARCELS 1 AND 2  
 CHICAGO, ILLINOIS**



Issued	
Rev	Date
1	02/15/2006
2	1-12-07
3	02/15/2006
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100	02/15/2006

## APPENDIX A

### USEPA Correspondence





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

DEC 16 2005

REPLY TO THE ATTENTION OF:

SE-5J

VIA FACSIMILE (847) 279-2510 AND U.S. MAIL

Dr. Steve Kornder  
STS Consultants, Ltd.  
750 Corporate Parkway  
Vernon Hills, Illinois 60061

RE: Lindsay Light II Operable Unit 10  
400 East Illinois  
fka 510 N. Peshtigo/Kraft Building, Parcel K  
and Parcel 21, Chicago, Illinois

Dear Dr. Kornder:

The purpose of this letter is to confirm the verbal approval I gave you on December 5, 2005, regarding your work plan for the above-referenced location. If you need additional information or have questions, please feel free to contact me at (312) 886-3601, or Gene Jablonowski, Alternate On-Scene Coordinator, at (312) 886-4591, or Larry Jensen, Senior Health Physicist, at (312) 886-5026.

Sincerely,

A handwritten signature in cursive script that reads "Verneta Simon".

Verneta Simon  
On-Scene Coordinator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

**VIA ELECTRONIC MAIL AND OVERNIGHT MAIL**

December 5, 2005

Vincent S. Oleszkiewicz  
Duane Morris LLP  
227 West Monroe Street  
Suite 3400  
Chicago IL 60606

Re: Lindsay Light II Former Kraft Building/Parking Lot  
Lindsay Light II OU 10 Administrative Settlement and  
Order on Consent for Removal Action

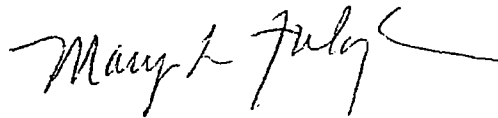
Dear Mr. Oleszkiewicz:

Enclosed is the fully executed Lindsay Light II Former Kraft Building/Parking Lot Lindsay Light II OU 10 Administrative Settlement and Order on Consent for Removal Action (Settlement Agreement). Thank you for working with your client to resolve outstanding issues prior to the initiation of construction at the property referenced above.

As I have explained, this Settlement Agreement became effective upon the Superfund Division Director's signature. I have also electronically mailed a pdf version of the fully-signed Settlement Agreement. As you are aware, paragraph 39. Payment for Past Cost requests that payment be made in accordance with current Electronic Funds Transfer (ETF) procedures. The Region's current ETF procedures include routing the ETF to JP Morgan Chase Bank NA, which is designated as American Banking Association (ABA) No.021000021 on the ETF bank form and assigning U.S. EPA Account No. 1113399 on the ETF form to receive the funds.

Thank you and your client for your cooperation in reaching this Settlement Agreement. We look forward to the cleanup as it will help ensure the protection of construction workers, utility workers and the public in Streeterville. If you have any questions, please call me or Cathy Martwick.

Sincerely,

A handwritten signature in black ink, reading "Mary L. Fulghum". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Mary L. Fulghum  
Associate Regional Counsel  
(312) 886-4683

enc.

cc: Cathleen Martwick

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5

IN THE MATTER OF:

Lindsay Light II Operable Unit 10  
400 E. Illinois fka 510 N. Peshtigo/Kraft  
Building, Parcel K and Parcel 21

Chicago, Illinois

Respondent:

Listed in Attachment A

ADMINISTRATIVE SETTLEMENT  
AGREEMENT AND ORDER ON  
CONSENT FOR REMOVAL ACTION

Docket No. V-W- '05-C-83

Proceeding Under Sections 104, 106(a), 107  
and 122 of the Comprehensive  
Environmental Response, Compensation,  
and Liability Act, as amended,  
42 U.S.C. §§ 9604, 9606(a), 9607 and 9622

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## **I. JURISDICTION AND GENERAL PROVISIONS**

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("U.S. EPA") and Respondent. This Settlement Agreement provides for the performance of removal actions by Respondent including recording deed restrictions on portions of the Site where radioactive contamination may be present and the reimbursement of certain response costs incurred by the United States at or in connection with the property designated Lindsay Light Operable Unit ("OU") 10, located at 400 East Illinois, Chicago, Illinois and that was formerly known as the Kraft Building property, 510 N. Peshtigo, Parcel K, and Parcel 21 which together comprise the entire block bounded by Illinois Street on the south, McClurg Court on the west, Grand Avenue on the north, and North Peshtigo Court on the east and known as the "Site."

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, as amended ("CERCLA"). This authority has been delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A, 14-14-C and 14-14-D, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A, 14-14-C and 14-14-D.

3. U.S. EPA has notified the State of Illinois (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. U.S. EPA and Respondent recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of facts, conclusions of law, and determinations in Sections IV and V of this Settlement Agreement. Respondent agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that it will not contest the basis or validity of this Settlement Agreement or its terms.

## **II. PARTIES BOUND**

5. This Settlement Agreement applies to and is binding upon U.S. EPA and upon Respondent and its successors and assigns. Any change in ownership or corporate status of the Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter the Respondent's responsibilities under this Settlement Agreement.

6. Respondent is jointly and severally liable for carrying out all activities required by this Settlement Agreement.

7. Respondent shall ensure that its contractors, subcontractors, and representatives comply with this Settlement Agreement. Respondent shall be responsible for any noncompliance with this Settlement Agreement.

## **III. DEFINITIONS**

8. Unless otherwise expressly provided herein, terms used in this Settlement Agreement which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

b. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXX.

c. "Future Response Costs" shall mean all costs, including direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement on or after the Effective Date. Future Response Costs shall also include all costs, including direct and indirect costs, incurred prior to the Effective Date, but paid after that date and all costs, including direct and indirect costs, paid by the United States in connection with the Site between September 30, 2005 and the Effective Date.

d. "Interest" shall mean interest at the rate specified for interest on investments of the U.S. EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate

of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

e. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

f. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXX Effective Date). In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

g. "Parties" shall mean U.S. EPA and Respondent.

h. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through September 30, 2005.

i. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

j. "Respondent" shall mean MCL CDC P21, L.L.C., a Delaware limited liability company.

k. "Site" shall mean the Lindsay Light II, Operable Unit 10, 400 E. Illinois Superfund Site that was also known as the Kraft Building property, 510 N. Peshtigo, Parcel K, and Parcel 21 which together comprise the entire city block bounded by Illinois Street on the south, McClurg Court on the west, Grand Avenue on the north, and North Peshtigo Court on the east in Chicago, Cook County, Illinois and depicted generally on the map attached as Exhibit A.

l. "State" shall mean the State of Illinois.

m. "Uninvestigated Site Perimeter" shall mean any portion of the Site which is not radiologically surveyed in 18-inch lifts or any portion of the site where any known contamination will remain after completion of the Work.

n. "U.S. EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

o. "Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); 2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); 3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and 4) any "hazardous material" under Section 3.125 of the Illinois Environmental Protection Act, 415 ILCS 5/3.125 (2002).

p. "Work" shall mean all activities the Respondent is required to perform under this Settlement Agreement.

q. "Work Plan" shall mean the U.S. EPA-approved work plan including schedule described in Section VIII Work to be Performed.

#### **IV. FINDINGS OF FACT**

9. Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

a. The Site is located at 400 East Illinois Street/510 North Peshtigo Court in Chicago, Illinois. The building formerly known as the Kraft Building occupied the southeastern portion of the Site. Respondent began demolishing this building in 2003 and completed the demolition in 2004. As of the beginning of July 2005, Respondent plans to begin construction on a multi-story, residential/retail development called ParkView West.

b. The Site is located immediately East of Lindsay Light II, 316 E. Illinois Street where the Lindsay Light Company ("Lindsay Light") refined monazite ore to produce thorium nitrate and manufacture thorium-impregnated gas mantles. The Site is separated from the Lindsay Light II, 316 E. Illinois Street site by McClurg Court.

c. Beginning in 1904, Lindsay Light manufactured gas lights and gas mantles for residential and commercial use at several locations in the Streeterville area. In 1914, Lindsay Light expanded its thorium manufacturing capacity to meet increased domestic and foreign demand. The production of thorium for its gas light mantles resulted in a sandy waste known as mill tailings that was used as fill material in the Streeterville area. Lindsay Light corporate records indicate that it planned to move all of its Streeterville operations to the City of West Chicago by September 1936.

d. U.S. EPA designated the initial thorium removal action at the 316 East Illinois Street which was the former location of Lindsay Light's ore processing plant as the Lindsay Light II removal site. U.S. EPA has identified ten other removal action operable units associated with the Lindsay Light II facility in addition to 400 East Illinois Street and, to date, approximately, 50,000

cubic yards of thorium contaminated material associated with the Lindsay Light II facility have been removed from the Streeterville area.

e. U.S. EPA has identified subsurface thorium contamination at the Site beneath the paved parking lot in the Parcel 21 portion of the Site.

f. Respondent plans to begin to excavate the Site on December 1, 2005.

g. Construction laborers, utility workers and the public may be exposed to elevated levels of thorium if the Site is excavated without proper radiation monitoring and management and disposal of radioactively contaminated materials.

i. Respondent may identify and remove radioactively contaminated soil only from certain portions of the Site.

#### **V. CONCLUSIONS OF LAW AND DETERMINATIONS**

10. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, U.S. EPA has determined that:

a. The Site is a part of a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Lindsay Light II facility, as identified in the Findings of Fact above, includes a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. The Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. The Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response action and for response costs incurred and to be incurred at the Site.

i. Respondent MCL CDC P21, L.L.C., is the "owner" and/or "operator" of the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

e. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility into the "environment" as defined by Sections 101(22) and 101(8) of CERCLA, 42 U.S.C. §§ 9601(22) and 9601(8).

f. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. §300.415(b)(2). These factors include, but are not limited to, the following:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the Site due to the existence of elevated levels of thorium found in subsurface soils that will be exposed by the removal of asphalt and excavation.

ii. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; this factor is present at the Site due to the existence of elevated levels of thorium in subsurface soils that will be exposed by the removal of asphalt pavement and excavation.

iii. Other situations or factors that may pose threats to public health or welfare or the environment; this factor is present at the Site due to the existence of elevated levels of thorium in subsurface soils that may be exposed during construction activities that may expose construction laborers, utility workers and the public to excessive levels of thorium.

g. The removal action, including deed restrictions, required by this Settlement Agreement is necessary to protect the public health, welfare, or the environment, 42 U.S.C. § 9604(a)(1), is in the public interest, 42 U.S.C. § 9622(a), and, if carried out in compliance with the terms of this Settlement Agreement, will be done properly and promptly by the Respondent and considered consistent with the NCP, 42 U.S.C. §§ 9604(a)(1) and 9622(a).

## **VI. SETTLEMENT AGREEMENT AND ORDER**

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Respondent shall comply with all provisions of this Settlement Agreement, including, but not limited to, all

Exhibits to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

**VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR,  
AND ON-SCENE COORDINATOR**

11. Respondent has selected a supervising contractor known as STS Consultants Ltd. to perform the Work. Respondent has provided U.S. EPA with the qualifications of STS Consultants, Ltd. Respondent has also notified U.S. EPA of the names of Stan A. Huber Consultants, Inc. (SAHCI), Budron Excavation, and RSSI, Inc. the subcontractors retained to perform the Work at the Site. If Respondent contracts with any other contractor(s) or subcontractor(s) to perform Work, Respondent must provide notice of the name(s) and qualification(s) of such person(s) at least 5 business days prior to commencement of such Work. U.S. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondent. If U.S. EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify U.S. EPA of that contractor's name and qualifications within 3 business days of U.S. EPA's disapproval. The supervising contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the contractor's Quality Management Plan ("QMP"). The QMP should be prepared consistent with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B0-1/002), or equivalent documentation as required by U.S. EPA.

12. Respondent has designated Dr. Steven Kornder as the Project Coordinator who shall be responsible for administration of all actions by Respondent required by this Settlement Agreement. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work. U.S. EPA retains the right to disapprove of any subsequent designated Project Coordinator. If U.S. EPA disapproves of a designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify U.S. EPA of that person's name, address, telephone number, and qualifications within 4 business days following U.S. EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from U.S. EPA relating to this Settlement Agreement shall constitute receipt by Respondent.

13. U.S. EPA has designated Verneta Simon of the Emergency Response Branch, Region 5, as its On-Scene Coordinator ("OSC") and Gene Jablonowski, Remedial Project Manager, of the Remedial Response Branch, Region 5 as its alternate OSC. Except as otherwise provided in this Settlement Agreement, Respondent shall direct all submissions required by this Settlement Agreement to the OSCs in accordance with Section XXVIII Notices and Submissions.

Respondent is encouraged to make its submissions to U.S. EPA on recycled paper (which includes significant post consumer waste paper content where possible) and using two-sided copies.

14. U.S. EPA and Respondent shall have the right, subject to Paragraph 12, to change their respective designated OSCs or Project Coordinator. U.S. EPA shall notify the Respondent, and Respondent shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. The initial notification may be made orally but it shall be promptly followed by a written notice.

#### **VIII. WORK TO BE PERFORMED**

15. Respondent shall perform, at a minimum, the following removal activities:

- a) Develop a Work Plan for the radiological assessment of the site.
- b) Develop and implement a site health and safety plan.
- c) Develop and implement an air monitoring plan.
- d) Develop and implement site security measures.
- e) Conduct land surveying to the extent necessary to establish a grid system to locate all property boundaries, special features (pipes, storage tanks, etc.), and sample locations.
- f) Place borings in critical locations (grid corners, high exposure rate areas, special features, etc.) for the purpose of measuring subsurface radiation levels. Measurements shall be recorded at each 6 inch depth until the natural soils are reached or radiation levels reach background, whichever is the greatest depth.
- g) Collect soil samples from the borings and analyze for radionuclide content and RCRA characteristics. These results will then be used by the Respondent to correlate subsurface radiation levels and radionuclide content, and to determine the disposal facility.
- h) Conduct off-site radiological surveying and sampling as necessary should contamination be discovered within the sidewalk rights-of-ways surrounding the Site and, at a minimum implement 40 C.F.R. §192 if deemed necessary.

i) Based upon soil results, remove, transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA approved disposal facility in accordance with the U.S. EPA off-site rule.

j) The soil clean-up criterion is 7.1 picoCuries per gram(pCi/g) total radium (Ra-226 + Ra-228) including background, unless analyses indicate the existence of additional contaminants, hazardous substances, pollutants or waste.

k) If any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work then Respondent shall identify and depict all locations at the Site that were not radiologically surveyed in 18-inch lifts or where any known contamination will remain after completion of the Work and shall implement U.S. EPA-approved deed restrictions or other U.S. EPA-approved institutional controls pertaining to the Site.

16. Work Plan and Implementation.

a. On November 23, 2005 Respondent submitted to U.S. EPA for approval a draft Work Plan, including a schedule, for performing the removal action generally described in Paragraph 15 above.

b. U.S. EPA may approve, disapprove, require revisions to, or modify the draft Work Plan in whole or in part. If U.S. EPA requires revisions, Respondent shall submit a revised draft Work Plan within 7 business days of receipt of U.S. EPA's notification of the required revisions. Respondent shall implement the Work Plan as approved in writing by U.S. EPA in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be incorporated into and become fully enforceable under this Settlement Agreement.

c. Respondent shall not commence any Work except in conformance with the terms of this Settlement Agreement. Respondent shall not commence implementation of the Work Plan developed hereunder until receiving written U.S. EPA approval pursuant to Paragraph 16(b).

17. Health and Safety Plan. Respondent has submitted for U.S. EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-Site work under this Settlement Agreement. This plan must be prepared consistent with U.S. EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health

Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. If U.S. EPA determines that it is appropriate, the plan shall also include contingency planning. Respondent shall incorporate all changes to the plan recommended by U.S. EPA and shall implement the plan during the pendency of the removal action.

18. Quality Assurance and Sampling.

a. All sampling and analyses performed pursuant to this Settlement Agreement shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate U.S. EPA guidance. Respondent shall follow, as appropriate, "Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures" (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondent shall only use laboratories that have a documented Quality System that complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01/002, March 2001)," or equivalent documentation as determined by U.S. EPA. U.S. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Respondent shall prepare a Quality Assurance Project Plan ("QAPP") as part of the Work Plan except in circumstances involving emergency or non-complex removal work. The QAPP should be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001), and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998).

b. Upon request by U.S. EPA, Respondent shall have such a laboratory analyze samples submitted by U.S. EPA for QA monitoring. Respondent shall provide to U.S. EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

c. Upon request by U.S. EPA, Respondent shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall notify U.S. EPA not less than 3 business days in advance of any sample collection activity, unless shorter notice is agreed to by U.S. EPA. U.S. EPA shall have the right to take any additional samples that U.S. EPA deems necessary. Upon request, U.S. EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

19. Reporting.

a. Respondent shall submit a written progress report to U.S. EPA concerning actions undertaken pursuant to this Settlement Agreement every 30th day after the date of receipt of U.S. EPA's approval of the Work Plan until termination of this Settlement Agreement, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

b. Respondent shall submit 3 copies of all plans, reports or other submissions required by this Settlement Agreement, or any approved work plan. Upon request by U.S. EPA, Respondent shall submit such documents in electronic form.

c. Respondent shall prior to the transfer or conveyance of any interest in real property at the Site (excluding condominium units or parking spaces), give written notice to the transferee that the property is subject to this Settlement Agreement and written notice to U.S. EPA of the transfer or conveyance, including the name and address of the transferee. Respondent also agrees to require that its successors comply with the immediately preceding sentence and Sections IX (Site Access), X (Deed Restriction/Institutional Control Document) and XI (Access to Information).

20. Final Report. Within 60 calendar days after completion of all Work required by Section VIII of this Settlement Agreement, Respondent shall submit for U.S. EPA review a final report summarizing the actions taken to comply with this Settlement Agreement. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports" and with the guidance set forth in "Superfund Removal Procedures: Removal Response Reporting – POLREPS and OSC Reports" (OSWER Directive No. 9360.3-03, June 1, 1994). The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Settlement Agreement, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

21. Off-Site Shipments.

a. Radioactive Waste Material. Respondent has advised U.S. EPA that it has agreed with Tronox L.L.C., successor to Kerr-McGee Chemical L.L.C., for Tronox L.L.C. to transport radioactive waste material to Envirocare of Utah, Inc. ("Envirocare"), a disposal facility in Clive, Utah licensed to accept radioactive Waste Material from the Site. Prior to the initial shipment of radioactive Waste Material originating from the Site, Respondent shall provide written notification of such shipment to the appropriate Utah state environmental official and to the On-Scene Coordinators.

i. Respondent shall include in the written notification the following information:

1) the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. Other Waste Material. If Respondent encounters any hazardous substances that are not radioactively contaminated in the course of conducting the Work, then before shipping any such non-radioactively contaminated hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent shall obtain U.S. EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

i. Prior to the initial shipment of non-radioactively contaminated Waste Material originating from the Site, Respondent shall provide written notification of such shipment to the appropriate state environmental official and to the On-Scene Coordinators. Settling Defendant shall comply with the terms and conditions of the notification requirements of Paragraph 21.a.i. for each such shipment of non-radioactive hazardous substances, pollutants, and contaminants.

ii. The identity of any facility and state receiving the non-radioactively contaminated Waste Material will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by Paragraph 22(a) and 22(b) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

#### **IX. SITE ACCESS**

22. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by the Respondent, Respondent shall, commencing on the Effective Date, provide U.S. EPA, the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

23. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use its best efforts to obtain all necessary access agreements within 10 business days after the Effective Date, or as otherwise specified in writing by the OSC. Respondent shall immediately notify U.S. EPA if after using its best efforts it is unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Respondent shall describe in writing its efforts to obtain access. U.S. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as U.S. EPA deems appropriate. Respondent shall reimburse U.S. EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVI (Payment of Response Costs).

24. Notwithstanding any provision of this Settlement Agreement, U.S. EPA and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

#### **X. DEED RESTRICTION/ INSTITUTIONAL CONTROL DOCUMENT**

25. Post-Removal Site Control. Consistent with Section 300.415(l) of the NCP and OSWER Directive No. 9360.2-02, upon completion of all Work required by Section VIII of this Settlement Agreement, if any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work then:

a. In accordance with the Work Plan, Respondent shall submit to U.S. EPA a map of the Uninvestigated Site Perimeter and

b. If Respondent, its contractors, representatives or agents disturb, expose or intrude upon the soils in the Uninvestigated Site Perimeter, Respondent, its contractors, representatives and agents shall notify U.S. EPA both by telephone and in writing of plans to work in the Uninvestigated Site Perimeter at least 72 hours prior to (but no more than 21 calendar days in advance of) commencing such activities. If material containing total radium in excess of 7.1 pCi/g is identified, the Respondent shall provide a letter report to U.S. EPA explaining how the work was conducted in accordance with the Work Plan within 60 days of completion of the work.

26. Within thirty (30) days of the completion of all Work required by Section VIII of the Settlement Agreement, if any portion of the Site is not radiologically surveyed in 18-inch lifts or if any known contamination will remain after completion of the Work, Respondent shall record, with the Recorder of Deeds, Cook County, Illinois, a deed restriction or other institutional control document ("Deed Restriction"), that U.S. EPA has approved in writing for this Site, and Respondent agrees that every subsequent deed or conveyance or transfer of any property interest instrument will be subject to the Deed Restriction. The Respondent further agrees that the language in the Deed Restriction shall not be modified or removed from the Deed Restriction without pre-approval from U.S. EPA, as described in Paragraph 27.

a. In the event of a conveyance or transfer of property interest, Respondent's obligations under this Settlement Agreement, including, but not limited to, its obligation to provide or secure access and institutional controls, as well as to abide by such institutional controls pursuant to this Section, shall continue to be met by Respondent unless otherwise agreed to by the U.S. EPA in writing. In no event shall the conveyance or transfer of property interest release or otherwise affect the liability of Respondent to comply with all provisions of this Settlement Agreement unless otherwise agreed to among the Parties hereto in writing.

c. The intent of Respondent is to record a Deed Restriction that is applicable to all subsequent owners of the Site. The Deed Restriction will apply to any portion of the Site that is not radiologically surveyed in 18-inch lifts or where any known contamination will remain after completion of the Work. The Deed Restriction shall provide the following:

- 1) subject to paragraph 27, a restriction, in perpetuity, on the disturbance of, exposure of or intrusion upon any portion of the Site that a) is not radiologically surveyed in 18-inch lifts or b) where any known contamination will remain;
- 2) the right to enforce said restrictions;
- 3) a right of access to the Site;

4) prior notice of disturbance, exposure, intrusion, or excavation of the soils in any portion of the Site that is not radiologically surveyed in 18-inch lifts or where any known contamination will remain; and

5) an agreement that when soils are disturbed, exposed, intruded or excavated in those areas, those activities are conducted in accordance with the Work Plan.

d. The Respondent agrees that every subsequent deed or other instrument conveying or transferring a property interest in the Site or any portion thereof shall be subject to the Deed Restriction.

27. U.S. EPA may terminate the restrictions in Paragraphs 25 and 27, in whole or in part, in writing, as authorized by law. If requested by the U.S. EPA, such writing will be executed by the Respondent in recordable form and recorded with the Recorder of Deeds, Cook County, Illinois. Respondent may modify or terminate the above restrictions in whole or in part, in writing, with the prior written approval of U.S. EPA. Respondent may seek to modify or terminate, in whole or in part, the restrictions by submitting to U.S. EPA, for approval, a written application that identifies each such restriction to be terminated or modified, describes the terms of each proposed modification and includes proposed revision(s) to the Deed Restriction and institutional control document described in Section X (Deed Restrictions/Institutional Control Document). Each application for termination or modification of any restriction shall include a demonstration that the requested termination or modification will not interfere with, impair or reduce protection of human health and the environment. If U.S. EPA makes a determination that an application satisfies the requirements of this Paragraph, including the criteria specified above, U.S. EPA will notify Respondent in writing. If U.S. EPA does not respond in writing to a request to change land use within 90 days of its receipt of that request, unless Respondent agrees to extend this period beyond 90 days, U.S. EPA may be deemed to have denied the request. If a modification to or termination of restriction is approved, Respondent shall record the revised Deed Restriction as approved by U.S. EPA, with the Recorder of Deeds, Cook County, Illinois.

## **XI. ACCESS TO INFORMATION**

28. Respondent shall provide to U.S. EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the

Work. Respondent shall also make available to U.S. EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

29. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to U.S. EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by U.S. EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to U.S. EPA, or if U.S. EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

30. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondent asserts such a privilege in lieu of providing documents, Respondent shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

31. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydro geologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

## **XII. RECORD RETENTION**

32. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVII (Notice of Completion of Work), Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVII (Notice of Completion of Work), Respondent shall also instruct its contractors and agents to preserve all

documents, records, and information of whatever kind, nature or description relating to performance of the Work.

33. At the conclusion of this document retention period, Respondent shall notify U.S. EPA at least 60 days prior to the destruction of any such records or documents, and, upon request by U.S. EPA, Respondent shall deliver any such records or documents to U.S. EPA. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege, it shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

34. Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by U.S. EPA or the State and that it has fully complied and will fully comply with any and all U.S. EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

### **XIII. COMPLIANCE WITH OTHER LAWS**

35. Respondent shall perform all actions required pursuant to this Settlement Agreement in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Settlement Agreement shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements ("ARARS") under federal environmental or state environmental or facility siting laws. Respondent shall identify ARARS in the Work Plan subject to U.S. EPA approval.

#### **XIV. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES**

36. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and U.S. EPA takes such action instead, Respondent shall reimburse U.S. EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVI (Payment of Response Costs).

37. In addition, in the event of any release of a hazardous substance from the Site, Respondent shall immediately notify the OSC at (312) 353-2318 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to U.S. EPA within 7 business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

#### **XV. AUTHORITY OF ON-SCENE COORDINATOR**

38. The OSC shall be responsible for overseeing Respondent's implementation of this Settlement Agreement. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement Agreement, or to direct any other removal action undertaken at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

#### **XVI. PAYMENT OF RESPONSE COSTS**

39. Payment for Past Response Costs.

- a. Within 30 days after the Effective Date, Respondent shall pay to U.S. EPA \$16,154.52 for Past Response Costs. Payment shall be made to U.S. EPA by Electronic Funds Transfer ("EFT") in accordance with current EFT procedures to

be provided to Respondent by U.S. EPA Region 5, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, and Site/Spill ID Number 05YT, and the U.S. EPA docket number for this action.

b. At the time of payment, Respondent shall send notice that such payment has been made to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590 and to Mary L. Fulghum, Associate Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590.

c. The total amount to be paid by Respondent pursuant to Paragraph 40(a) shall be deposited in the Lindsay Light II Special Account within the U.S. EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by U.S. EPA to the U.S. EPA Hazardous Substance Superfund.

40. Payments for Future Response Costs.

a. Respondent shall pay U.S. EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, U.S. EPA will send Respondent a bill requiring payment that consists of an Itemized Cost Summary. Respondent shall make all payments within 30 calendar days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 42 of this Settlement Agreement.

b. The total amount to be paid by Respondent pursuant to this Paragraph shall be deposited in the Lindsay Light Special Account within the U.S. EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by U.S. EPA to the U.S. EPA Hazardous Substance Superfund.

41. In the event that the payment for Past Response Costs is not made within 30 days of the Effective Date, or the payments for Future Response Costs are not made within 30 days of Respondent's receipt of a bill, Respondent shall pay Interest on the unpaid balance. The Interest on Past Response Costs shall begin to accrue on the Effective Date and shall continue to accrue until the date of payment. The Interest on Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XIX.

42. Respondent may dispute all or part of a bill for Future Response Costs submitted under this Settlement Agreement, only if Respondent alleges that U.S. EPA has made an

accounting error, or if Respondent alleges that a cost item is inconsistent with the NCP. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondent shall pay the full amount of the uncontested costs to U.S. EPA as specified in Paragraph 40 on or before the due date. Within the same time period, Respondent shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondent shall simultaneously transmit a copy of both checks to the persons listed in Paragraph 39(b) above. Respondent shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which it prevailed from the escrow funds plus interest within 20 calendar days after the dispute is resolved.

#### **XVII. DISPUTE RESOLUTION**

43. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

44. If Respondent objects to any U.S. EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, it shall notify U.S. EPA in writing of its objection(s) within 10 calendar days of such action, unless the objection(s) has/have been resolved informally. This written notice shall include a statement of the issues in dispute, the relevant facts upon which the dispute is based, all factual data, analysis or opinion supporting Respondent's position, and all supporting documentation on which such party relies. U.S. EPA shall provide its Statement of Position, including supporting documentation, no later than 10 calendar days after receipt of the written notice of dispute. In the event that these 10-day time periods for exchange of written documents may cause a delay in the work, they shall be shortened upon, and in accordance with, notice by U.S. EPA. The time periods for exchange of written documents relating to disputes over billings for response costs may be extended at the sole discretion of U.S. EPA. An administrative record of any dispute under this Section shall be maintained by U.S. EPA. The record shall include the written notification of such dispute, and the Statement of Position served pursuant to the preceding paragraph. Upon review of the administrative record, the Director of the Superfund Division, U.S. EPA Region 5, shall resolve the dispute consistent with the NCP and the terms of this Settlement Agreement.

45. Respondent's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with U.S. EPA's decision, whichever occurs.

### **XVIII. FORCE MAJEURE**

46. Respondent agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

47. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondent shall notify U.S. EPA orally within 24 hours of when Respondent first knew that the event might cause a delay. Within 7 calendar days thereafter, Respondent shall provide to U.S. EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if Respondent intends to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall be grounds for U.S. EPA to deny Respondent an extension of time for performance. Respondent shall have the burden of demonstrating by a preponderance of the evidence that the event is a force majeure, that the delay is warranted under the circumstances, and that best efforts were exercised to avoid and mitigate the effects of the delay.

48. If U.S. EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by U.S. EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If U.S. EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, U.S. EPA will notify Respondent in writing of its decision. If U.S. EPA agrees that the delay is attributable to a *force majeure* event, U.S. EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

### **XIX. STIPULATED PENALTIES**

49. Respondent shall be liable to U.S. EPA for stipulated penalties in the amounts set forth in Paragraphs 50 and 51 for failure to comply with the requirements of this Settlement Agreement specified below, unless excused under Section XVIII (*Force Majeure*). "Compliance" by Respondent shall include completion of the activities under this Settlement Agreement or any work plan or other plan approved under this Settlement Agreement identified below in accordance with all applicable requirements of this Settlement Agreement within the specified time schedules established by and approved under this Settlement Agreement.

#### **50. Stipulated Penalty Amounts - Work.**

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 50(c) (i), ii, iii or iv:

<u>Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500.00	1 <sup>st</sup> through 14 <sup>th</sup> day
\$2,000.00	15 <sup>th</sup> through 30 <sup>th</sup> day
\$5,000.00	31 <sup>st</sup> day and beyond

b. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 50(c)(v):

<u>1st Violation- Per Day Penalty</u>	<u>Period of Noncompliance</u>
\$ 500.00	1 <sup>st</sup> day
\$ 1,000.00	2 <sup>nd</sup> day
\$ 1,500.00	3 <sup>rd</sup> through 5 <sup>th</sup> day
\$ 3,500.00	6 <sup>th</sup> through 15 <sup>th</sup>
\$ 7,500.00	16 <sup>th</sup> day and beyond

<u>2nd Violation- Per Day Penalty</u>	<u>Period of Noncompliance</u>
\$ 1,500.00	1 <sup>st</sup> day
\$ 2,250.00	2 <sup>nd</sup> day
\$ 3,500.00	3 <sup>rd</sup> through 5 <sup>th</sup> day
\$ 5,000.00	6 <sup>th</sup> through 15 <sup>th</sup>
\$10,000.00	16 <sup>th</sup> day and beyond

<u>3<sup>rd</sup> or More Violation Per Day Penalty</u>	<u>Period of Noncompliance</u>
\$ 2,500.00	1 <sup>st</sup> day
\$ 4,000.00	2 <sup>nd</sup> day
\$ 7,500.00	3 <sup>rd</sup> through 5 <sup>th</sup> day
\$12,500.00	6 <sup>th</sup> through 15 <sup>th</sup> day
\$20,000.00	16 <sup>th</sup> day and beyond

c. Compliance Milestones

- i. Payment of Past Costs due 30 days after the Effective Date of this Settlement Agreement.
- ii. Payment of Future Costs due 30 days after Respondent's receipt of demand.
- iii. Recording the Deed Restriction within 30 calendar days after completion of all Work required by Section VIII of this Settlement Agreement.
- iv. Submit to U.S. EPA a draft map and a final revised map of the Uninvestigated Site Perimeter in accordance with the Work Plan.
- v. 72-hour advance notice of intrusive work in Uninvestigated Site Perimeter as required in Paragraph 25.

51. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 19 and 20 :

<u>Violation Per Day</u>	<u>Period of Noncompliance</u>
\$250.00	1 <sup>st</sup> through 14 <sup>th</sup> day
\$500.00	15 <sup>th</sup> through 30 <sup>th</sup> day
\$3000.00	31 <sup>st</sup> day and beyond

52. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st day after U.S. EPA's receipt of such submission until the date that U.S. EPA notifies Respondent of any deficiency; and 2) with respect to a

decision by the Director of the Superfund Division, Region 5, under Paragraph 44 of Section XVII (Dispute Resolution), during the period, if any, beginning on the 21st day after U.S. EPA submits its written statement of position until the date that the Director of the Superfund Division issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

53. Following U.S. EPA's determination that Respondent has failed to comply with a requirement of this Settlement Agreement, U.S. EPA may give Respondent written notification of the failure and describe the noncompliance. U.S. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether U.S. EPA has notified Respondent of a violation.

54. All penalties accruing under this Section shall be due and payable to U.S. EPA within 30 days of Respondent's receipt from U.S. EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVII (Dispute Resolution). All payments to U.S. EPA under this Section shall be paid by certified or cashier's check made payable to "U.S. EPA Hazardous Substances Superfund," shall be mailed to U.S. Environmental Protection Agency, Program Accounting & Analysis Section, P.O. Box 70753, Chicago, Illinois 60673, shall indicate that the payment is for stipulated penalties, and shall reference the U.S. EPA Site/Spill ID Number 05YT, the U.S. EPA Docket Number, and the name and address of the party making payment. Copies of any check paid pursuant to this Section, and any accompanying transmittal letters, shall be sent to U.S. EPA as provided in Paragraph 39(b).

55. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Settlement Agreement.

56. Penalties shall continue to accrue during any dispute resolution period, but need not be paid until 20 days after the dispute is resolved by agreement or by receipt of U.S. EPA's decision.

57. If Respondent fails to pay stipulated penalties when due, U.S. EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 54. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of U.S. EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(l) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that U.S. EPA shall not seek

civil penalties pursuant to Section 106(b) or 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Settlement Agreement. Should Respondent violate this Settlement Agreement or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. §9604, and/or may seek judicial enforcement of this Settlement Agreement pursuant to Section 106 of CERCLA, 42 U.S.C. §9606. Notwithstanding any other provision of this Section, U.S. EPA may, in its unreviewable discretion, waive in writing any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

#### **XX. COVENANT NOT TO SUE BY U.S. EPA**

58. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, U.S. EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work, Past Response Costs, and Future Response Costs. This covenant not to sue shall take effect upon receipt by U.S. EPA of the Past Response Costs due under Section XVI of this Settlement Agreement and any Interest or Stipulated Penalties due for failure to pay Past Response Costs as required by Sections XVI and XIX of this Settlement Agreement. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondent of its obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Section XVI. This covenant not to sue extends only to Respondent and does not extend to any other person.

#### **XXI. RESERVATIONS OF RIGHTS BY U.S. EPA**

59. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

60. The covenant not to sue set forth in Section XX above does not pertain to any matters other than those expressly identified therein. U.S. EPA reserves, and this Settlement Agreement

is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

- a. claims based on a failure by Respondent to meet a requirement of this Settlement Agreement;
- b. liability for costs not included within the definitions of Past Response Costs or Future Response Costs;
- c. liability for performance of response action other than the Work;
- d. criminal liability;
- e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments; and
- f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site.

## **XXII. COVENANT NOT TO SUE BY RESPONDENT**

61. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Past Response Costs, Future Response Costs, or this Settlement Agreement, including, but not limited to:

- a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;
- b. any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Illinois State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or
- c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Site.

These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 61 (b), (c), and (e) - (g), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

62. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

### **XXIII. OTHER CLAIMS**

63. By issuance of this Settlement Agreement, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or U.S. EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement Agreement.

64. Except as expressly provided in Section XX (Covenant Not to Sue by U.S. EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

65. No action or decision by U.S. EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

### **XXIV. CONTRIBUTION**

66. a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work, Past Response Costs, and Future Response Costs.

b. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which the Respondent has, as of the Effective Date, resolved its liability to the United States for the Work, Past Response Costs, and Future Response Costs.

c. Nothing in this Settlement Agreement precludes the United States or Respondent from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any persons not parties to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Section 113(f)(2) and (3), 42 U.S.C. § 9613(f)(2) and (3), to pursue any such persons to obtain additional response costs or response action, and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2).

## **XXV. INDEMNIFICATION**

67. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Settlement Agreement. Neither Respondent nor any such contractor shall be considered an agent of the United States. The Federal Tort Claims Act (28 U.S.C. §§ 2671, 2680) provides coverage for injury or loss of property, or injury or death caused by the negligent or wrongful act or omission of an employee of U.S. EPA while acting within the scope of his or her employment, under circumstances where U.S. EPA, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.

68. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

69. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

## **XXVI. MODIFICATIONS**

70. The OSC may make modifications to any plan or schedule in writing or by oral direction. Any oral modification will be memorialized in writing by U.S. EPA promptly, but shall have as its effective date the date of the OSC's oral direction. Any other requirements of this Settlement Agreement may be modified in writing by mutual agreement of the parties.

71. If Respondent seek permission to deviate from any approved work plan or schedule, Respondent's Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral or written approval from the OSC pursuant to Paragraph 70.

72. No informal advice, guidance, suggestion, or comment by the OSC or other U.S. EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

## **XXVII. NOTICE OF COMPLETION OF WORK**

73. When U.S. EPA determines, after U.S. EPA's review of the Final Report, that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including, *e.g.*, post-removal site controls, payment of Future Response Costs, and record retention, U.S. EPA will provide written notice to Respondent. If U.S. EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, U.S. EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modifies the Work Plan if appropriate in order to correct such deficiencies. Respondent shall implement the

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modified and approved Work Plan and shall submit a modified Final Report in accordance with the U.S. EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this Settlement Agreement.

#### **XXVIII. NOTICES AND SUBMISSIONS**

74. Whenever, under the terms of this Agreement, notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of this Agreement with respect to U.S. EPA and Respondent.

##### **As to U.S. EPA:**

Mary L. Fulghum  
Cathleen M. Martwick  
Associate Regional Counsel  
U.S. EPA (C-14J)  
77 W. Jackson Blvd.  
Chicago, Illinois 60604

Verneta Simon, P.E.  
On-Scene Coordinator  
U.S. EPA (SE-6J)  
77 W. Jackson Blvd.  
Chicago, Illinois 60604

Gene Jablonowski  
Project Manager  
U.S. EPA (SR-6J)  
77 W. Jackson Blvd.  
Chicago, Illinois 60604

Vanessa Mbogo  
Comptroller's Office  
U.S. EPA (MF-10J)  
77 W. Jackson Blvd.  
Chicago, Illinois 60604

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As to Respondent:

Charles Landefeld  
MCL CDC P21 L.L.C.  
455 East Illinois Street  
Chicago Illinois 60611

Vincent Oleszkiewicz  
Duane Morris LLP  
227 West Monroe Street  
Suite 3400  
Chicago Illinois 60606

Steve Kornder  
STS Consultants Inc  
750 Corporate Woods Parkway  
Vernon Hills Illinois 60061-3153

#### **XXIX. SEVERABILITY/INTEGRATION/EXHIBIT**

75. If a court issues an order that invalidates any provision of this Settlement Agreement or finds that Respondent has sufficient cause not to comply with one or more provisions of this Settlement Agreement, Respondent shall remain bound to comply with all provisions of this Settlement Agreement not invalidated or determined to be subject to a sufficient cause defense by the court's order.

76. This Settlement Agreement and its Exhibits constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following Exhibit is incorporated into this Settlement Agreement:

Exhibit A      Site Map.

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**XXX. EFFECTIVE DATE**

77. This Settlement Agreement shall be effective upon signature of this Settlement by the Director, Superfund Division, U.S. EPA Region 5.

The undersigned representative of Respondent certifies that s/he is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind the party s/he represent to this document.

Agreed this 23<sup>rd</sup> day of November, 2005.

For Respondent **MCL CDC P21, L.L.C.**

By: Daniel E. McLean  
Title President

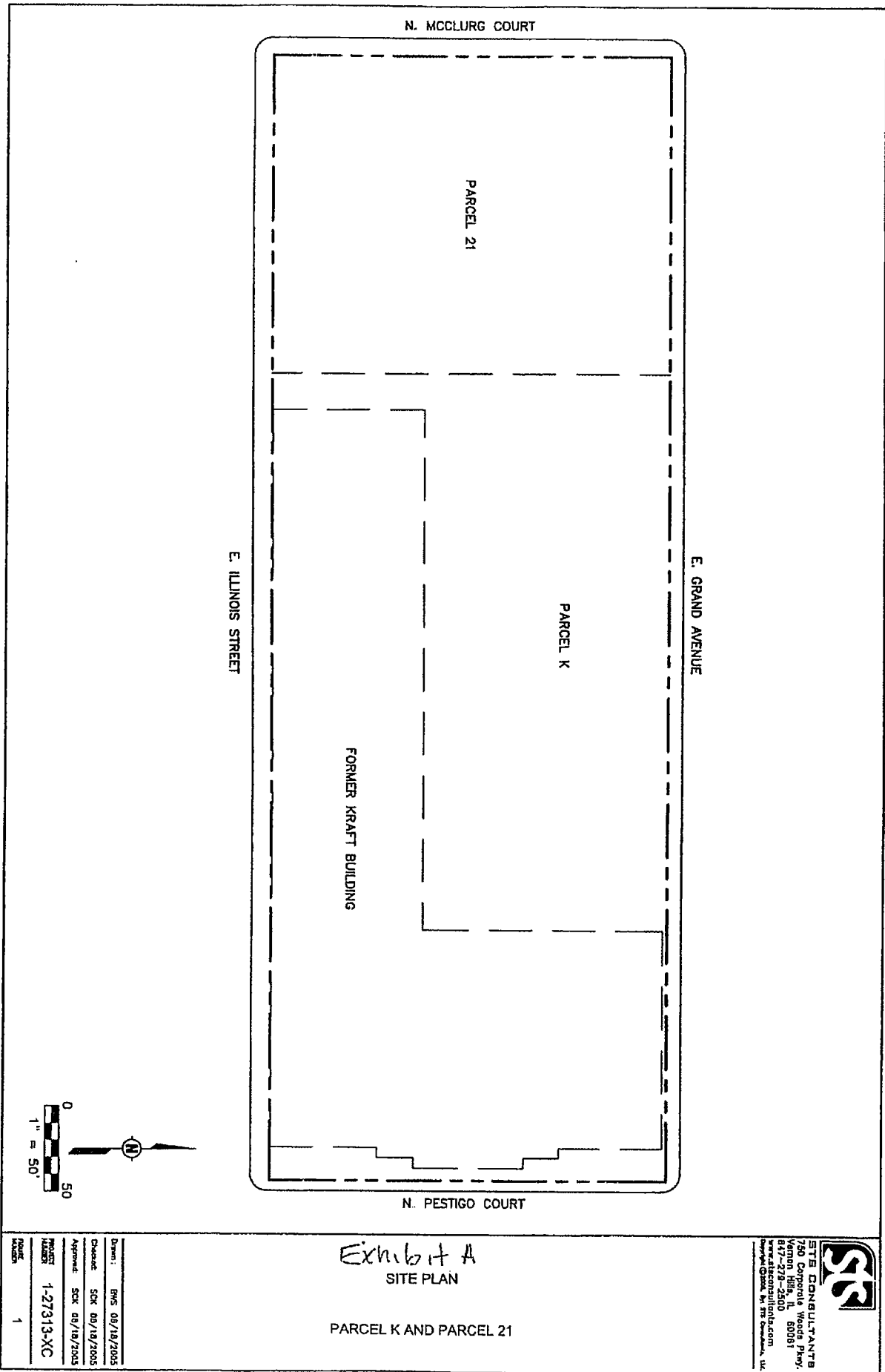
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IN THE MATTER OF:

Lindsay Light II, 400 E. Illinois  
Chicago, Illinois

It is so ORDERED and Agreed this 5th day of December, 2005.

BY: Richard C. Karl  
Richard C. Karl, Director  
Superfund Division  
United States Environmental Protection Agency  
Region 5



**Exhibit A**  
SITE PLAN

PARCEL K AND PARCEL 21



**STE CONSULTANTS**  
750 Corporate Woods Pkwy.  
Vernon Hills, IL 60061  
847-278-2500  
Fax: 847-278-1544  
www.steconsultants.com  
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Drawn:	BWS 08/18/2005
Checked:	SCX 08/18/2005
Approved:	SCX 08/18/2005
PROJECT NUMBER:	1-27313-XC
DATE:	1

## APPENDIX B

### Radiological Soil Sample Analyses - NUTRANL Analyses

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/5/06-1/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
991	1/5/2006	soil standard	soilstd010506	36.9	2.11	4.1	5.41	1.25	1.54	1.6	6.95	2.03039405
992	1/5/2006	background	bkg010506	7.5	-1	0	-1	0	-1	0	-2	0
993	1/5/2006	21K Test Pit	B10 Test Pit White Brick 1	32.5	2.07	3.44	5.24	1.05	7.36	1.4	12.6	1.75
994	1/5/2006	21K Test Pit	B10 Test Pit White Brick 2	32.4	14.06	4.13	5.09	1.18	7.9	1.61	12.99	1.996121239
995	1/5/2006	21K Test Pit	B10 Test Pit Red Brick 1	29.6	0.32	2.77	0.66	0.88	3.01	1.15	3.67	1.448067678
996	1/5/2006	21K Test Pit	B10 Test Pit Red Brick 2	31.4	3.69	3.1	1.06	0.94	2.07	1.24	3.13	1.556020565
997	1/5/2006	21K Test Pit	B3 Test Pit #1	22.3	1.53	3.56	2.58	1.07	2.18	1.45	4.76	1.802054383
998	1/5/2006	21K Test Pit	B3 Test Pit #2	21.6	-2.31	3.19	1.91	1.02	2.73	1.38	4.64	1.716041958
999	1/5/2006	21K Test Pit	B6 Test Pit #1	25.7	-2.14	3.29	3.58	1.05	-0.51	1.35	3.07	1.710263138
1000	1/5/2006	21K Test Pit	B6 Test Pit #2	22.5	6.78	4.35	1.65	1.27	-0.64	1.63	1.01	2.066349438
1001	1/6/2006	soil standard	soilstd010606	36.9	2.36	4.1	5.31	1.28	1.68	1.61	6.99	2.056817931
1002	1/6/2006	soil standard	soilstd010606(2)	36.9	3.23	3.81	5.42	1.16	1.01	1.49	6.43	1.888306119
1003	1/6/2006	soil standard	soilstd010606(3)	36.9	4.18	3.09	4.88	0.92	2.41	1.22	7.29	1.528005236
1004	1/6/2006	background	bkg010606	7.5	-2.69	2.6	-0.33	0.87	1.24	1.2	0.91	1.482194319
1005	1/6/2006	21K exclusion	S2708 H-14.5 exclusion zone	20.5	-15.04	8.7	55.78	2.59	9.51	3.2	65.29	4.116807015
1006	1/9/2006	background	bkg010906	7.5	-3	1.88	-0.13	0.62	0.38	0.87	0.25	1.068316433
1007	1/9/2006	soil standard	soilstd010906	36.9	-2.78	3.03	5.27	0.94	1.8	1.2	7.07	1.524335921

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/5/06-1/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1008	1/9/2006	21K exclusion zone	S2709 B.5-2 exclusion zone	23.6	-23.42	8.64	66.31	2.57	-2.57	3.06	63.74	3.99606056
1009	1/9/2006	EPA QC Standards	EPA RESL080905(3)	18.79	18.7	4.61	9.73	1.33	12.2	1.76	21.93	2.206014506
1010	1/9/2006	EPA QC Standards	EPA RESL081005(3)	21.4	3.01	2.57	2.52	0.78	3.46	1.05	5.98	1.308013761
1011	1/9/2006	EPA QC Standards	EPA RESL081105(3)	16.58	43.1	9.26	22.43	2.65	40.28	3.61	62.71	4.47823626
1012	1/10/2006	background	bkg011006	7.5	-1.55	2.29	-1.05	0.75	0.23	1.05	-0.82	1.29034879
1013	1/10/2006	soil standard	soilstd011006	36.9	2.93	2.49	4.93	0.75	2.93	0.98	7.86	1.234058345
1014	1/10/2006	21K overburden	S2710 B-C.5/1.5-3.5 OB#1	28.3	3.03	2.63	1.97	0.81	0.35	1.05	2.32	1.326122166
1015	1/10/2006	21K overburden	S2711 B-C.5/1.5-3.5 OB#2	26.9	-2.93	3.2	4.12	1	-1.11	1.27	3.01	1.61644672
1016	1/10/2006	21K overburden	S2712 B-C.5/1.5-3.5 OB#3	24.6	-3.82	2.47	1.84	0.8	2.2	1.08	4.04	1.344023809
1017	1/10/2006	21K overburden	S2713 B-C.5/1.5-3.5 OBQC	26.6	-1.93	3.24	2.63	1	-0.03	1.32	2.6	1.656019324
1018	1/16/2006	background	bkg011605	7.5	-1.95	2.29	-0.38	0.74	-0.43	1.02	-0.81	1.26015872
1019	1/16/2006	soil standard	soilstd011605	36.9	-0.51	3.49	4.3	1.07	3.29	1.44	7.59	1.794017837
1020	1/16/2006	21K exclusion zone	S2714 C.5-5.5 exclusion zone	31.3	-249.73	44.62	519.33	13.3	1.58	15.78	520.91	20.63730603

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/5/06-1/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1021	1/16/2006	21K exclusion zone	S2715 C-5 exclusion zone	30.5	5.61	4.31	1.94	1.29	3.75	1.69	5.69	2.126076198
1022	1/16/2006	21K exclusion zone	S2716 B.5-5.5 exclusion zone	33.4	-13.55	6.69	54	2.01	11.15	2.48	65.15	3.192256255
1023	1/16/2006	21K exclusion	S2717 B.2-5.5 exclusion zone	30.1	-6.05	4.51	25.86	1.36	0.4	1.65	26.26	2.138246946
1024	1/18/2006	background	bkg011806	7.5	3.22	2.52	-0.73	0.76	0.37	1.1	-0.36	1.337011593
1025	1/18/2006	soil standard	soilstd011806	36.9	-3.09	3.2	5.3	0.99	2.79	1.31	8.09	1.642010962
1026	1/18/2006	21K exclusion zone	S2718 E-2 exclusion zone	31.7	0.5	3.97	9.68	1.18	1.86	1.52	11.54	1.924266094
1027	1/18/2006	21K exclusion	S2719 F-2.5 exclusion zone	31.4	-0.5	3.84	14.45	1.16	0.57	1.41	15.02	1.825842271
1028	1/19/2006	background	bkg011906	7.5	-3.45	2.12	-0.48	0.69	0.46	0.98	-0.02	1.198540779
1029	1/19/2006	soil standard	soilstd011906	36.9	1.67	3.4	5.01	1.04	1.29	1.32	6.3	1.680476123
1030	1/19/2006	21K spot sample	S2720 L.5-4 cinders 15.4kcpm	23.4	3.29	3.09	2.18	0.95	2.07	1.28	4.25	1.594020075
1031	1/19/2006	21K spot sample	S2721 K-4.5 cinders 16.7kcpm	22.1	5.58	3.57	1.79	1.09	1.62	1.4	3.41	1.77428859

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/21/06-2/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1032	1/25/2006	soil standard	soilstd012506	36.9	6.06	4.47	5.51	1.3	0.94	1.67	6.45	2.116341182
1033	1/25/2006	background	bkg012506	7.5	-1.66	2.67	0.19	0.88	-0.88	1.17	-0.69	1.464001366
1034	1/25/2006	21K exclusion zone	S2722 B.5-7 exclusion zone	30.6	3.9	4.12	8.31	1.25	0.99	1.53	9.3	1.975702407
1035	1/25/2006	21K exclusion zone	S2723 E-3.5 exclusion zone	34.1	-11.07	8.16	44.43	2.44	3.43	2.96	47.86	3.836039624
1036	2/2/2006	background	bkg020206	7.5	-0.01	1.66	-0.89	0.53	0.55	0.75	-0.34	0.918368118
1037	2/2/2006	soil standard	soilstd020206	36.9	-5.31	3.75	6.25	1.18	0.85	1.5	7.1	1.90850727
1038	2/2/2006	21K Pre EPA	S2724 B.5-F.5/1-2 Pre EPA	32.5	6.06	3.26	3.52	0.97	-0.63	1.2	2.89	1.543016526
1039	2/2/2006	21K Pre EPA	S2725 B.5-F.5/2-3 Pre EPA	32.4	6.1	2.59	2.74	0.78	-0.2	0.97	2.54	1.244708801
1040	2/2/2006	21K Pre EPA	S2726 B.5-F.5/3-4 Pre EPA	31.2	1.15	3.52	2.33	1.12	0.11	1.4	2.44	1.792874786
1041	2/2/2006	21K Pre EPA	S2727 B.5-F.5/4-5 Pre EPA	28.6	1.4	3.17	1.59	0.96	2.45	1.31	4.04	1.624099751
1042	2/2/2006	21K Pre EPA	S2728 A.5-E.5/5-6 Pre EPA	31.3	-2.16	3.39	1.64	1.08	-0.07	1.45	1.57	1.808009956
1044	2/2/2006	EPA	S2729 B.5-F.5/1-2 EPA #1	31.7	3.25	1.82	2.61	0.55	0.99	0.71	3.6	0.898109125
1045	2/2/2006	EPA	S2730 B.5-F.5/1-2 EPA #2	32.3	-1.11	2.42	4.65	0.74	-1.15	0.9	3.5	1.165160933
1046	2/2/2006	EPA	S2731 B.5-F.5/1-2 EPA #3	35.7	5.44	2.62	2.66	0.78	0.52	1	3.18	1.268227109
1047	2/2/2006	EPA	S2732 B.5-F.5/1-2 EPA #4	34.5	-0.2	1.97	3.12	0.61	1.99	0.8	5.11	1.006031809
1048	2/2/2006	EPA	S2733 B.5-F.5/1-2 EPA #5	33.6	2.81	2.52	3.26	0.77	1	0.99	4.26	1.254192968
1049	2/2/2006	EPA	S2734 B.5-F.5/2-3 EPA #1	34.3	0.87	2.53	3.74	0.75	-0.48	0.97	3.26	1.22613213

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/21/06-2/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1050	2/2/2006	EPA	S2735 B.5-F.5/2-3 EPA #2	33.3	-4.84	2.11	1.63	0.69	2.31	0.91	3.94	1.142015762
1051	2/2/2006	EPA	S2736 B.5-F.5/2-3 EPA #3	35.2	2.23	2.58	1.52	0.79	1.66	1.06	3.18	1.322006051
1052	2/2/2006	EPA	S2737 B.5-F.5/2-3 EPA #4	34.3	2.43	1.91	3.46	0.59	-0.45	0.73	3.01	0.938616002
1053	2/2/2006	EPA	S2738 B.5-F.5/2-3 EPA #5	35.5	-1.56	2.29	2.73	0.71	0.58	0.92	3.31	1.16211015
1054	2/2/2006	EPA	S2739 B.5-F.5/3-4 EPA #1	34.1	3.91	1.86	0.84	0.56	1.41	0.76	2.25	0.944033898
1055	2/2/2006	EPA	S2740 B.5-F.5/3-4 EPA #2	32.3	-0.22	2.32	1.73	0.72	1.17	0.94	2.9	1.184060809
1056	2/2/2006	EPA	S2741 B.5-F.5/3-4 EPA #3	33.5	-0.58	2.24	2.18	0.7	0.08	0.89	2.26	1.132298547
1057	2/2/2006	EPA	S2742 B.5-F.5/3-4 EPA #4	31.3	-0.59	1.79	1.86	0.56	1.1	0.74	2.96	0.928008621
1058	2/2/2006	EPA	S2743 B.5-F.5/3-4 EPA #5	29.2	0.05	1.96	0.93	0.61	1.56	0.83	2.49	1.030048543
1059	2/2/2006	EPA	S2744 B.5-F.5/4-5 EPA #1	32.5	4.92	1.83	-0.2	0.55	1.6	0.75	1.4	0.930053762
1060	2/2/2006	EPA	S2745 B.5-F.5/4-5 EPA #2	32.4	1.63	3.05	1.13	0.92	0	1.26	1.13	1.5601282
1061	2/2/2006	EPA	S2746 B.5-F.5/4-5 EPA #3	31.3	4.11	1.51	-0.03	0.46	1.14	0.62	1.11	0.772010363
1062	2/2/2006	EPA	S2747 B.5-F.5/4-5 EPA #4	33.3	6.97	2.1	-0.68	0.62	2.01	0.87	1.33	1.068316433
1063	2/2/2006	EPA	S2748 B.5-F.5/4-5 EPA #5	32.9	2.09	1.87	1.8	0.57	-1.02	0.71	0.78	0.910494371
1064	2/2/2006	EPA	S2749 C-E.5/5-6 EPA #1	32.6	-1.73	2.77	2.36	0.86	1.99	1.18	4.35	1.46013698
1065	2/2/2006	EPA	S2750 C-E.5/5-6 EPA #2	31.3	0.5	2.08	2.6	0.64	-0.6	0.81	2	1.032327467

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/21/06-2/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1066	2/2/2006	EPA	S2751 C-E.5/5-6 EPA #3	32.7	-4.06	2.65	3.17	0.84	-0.8	1.08	2.37	1.36821051
1067	2/2/2006	EPA	S2752 C-E.5/5-6 EPA #4	32.5	-0.4	1.78	2.34	0.56	1	0.74	3.34	0.928008621
1068	2/2/2006	EPA	S2753 C-E.5/5-6 EPA #5	32.4	1.36	1.97	2	0.6	0.57	0.78	2.57	0.984073168
1069	2/13/2006	background	bkg021306	7.5	-1.95	2.61	0.71	0.83	-1.27	1.13	-0.56	1.402069898
1070	2/13/2006	soil standard	soilst021306	36.9	-1.32	3.52	7.08	1.09	0.03	1.35	7.11	1.735108066
1071	2/13/2006	21K exclusion zone	S2754 K-4.5 exclusion zone	21.6	-1.36	2.82	2.75	0.89	2.81	1.16	5.56	1.462087549
1072	2/13/2006	21K exclusion zone	S2755 J.5-4.5 exclusion zone	18.5	-2.06	3.21	2.21	1.02	5.4	1.38	7.61	1.716041958
1073	2/13/2006	21K exclusion zone	S2756 K.5-5 exclusion zone	20.6	-1.9	2.48	2.7	0.78	4.5	1.05	7.2	1.308013761
1074	2/13/2006	21K exclusion zone	S2757 K-4 exclusion zone	23.4	-4.11	3.52	10.02	1.09	13.49	1.45	23.51	1.814001103
1075	2/14/2006	background	bkg021406	7.5	-3.39	1.75	1.44	0.57	-1.8	0.74	-0.36	0.934077085
1076	2/14/2006	soil standard	soilst021406	36.9	-3.35	3.34	5.63	1.06	1.74	1.35	7.37	1.716420694
1077	2/14/2006	21K exclusion zone	S2758 L-4 exclusion zone	20.3	-7.07	4.83	9.72	1.49	11.26	2.01	20.98	2.502039168
1078	2/14/2006	21K exclusion zone	S2759 K.5-4 exclusion zone	21.7	1.99	3	3.44	0.91	4.29	1.22	7.73	1.522005256
1079	2/14/2006	21K exclusion zone	S2760K.5-3 exclusion zone	23.2	1.12	6.33	11.54	1.96	15.77	2.57	27.31	3.232104578
1081	2/14/2006	21K exclusion zone	S2761 K.5-2.5 exclusion zone	21.6	0.68	3.76	2.81	1.15	4.25	1.55	7.06	1.930025907
1082	2/15/2006	background	bkg021506	7.5	0.42	2.45	0.26	0.75	-0.75	1.01	-0.49	1.258014308

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 1/21/06-2/20/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1083	2/15/2006	soil standard	soilstd021506	36.9	-1.51	3.33	5.49	1.02	2.54	1.33	8.03	1.676096656
1084	2/15/2006	21K overburden	S2762 K-L/2-5 OB#1	21.9	2.3	3.31	1.46	1.01	-0.46	1.33	1	1.67002994
1085	2/15/2006	21K overburden	S2763 K-L/2-5 OB#2	24.5	5.08	3.35	3.05	0.99	-1.69	1.25	1.36	1.594553229
1086	2/15/2006	21K overburden	S2764 K-L/2-5 OB#3	20.4	1.01	2.58	1.66	0.78	0.77	1.07	2.43	1.324122351
1087	2/15/2006	21K overburden	S2765 K-L/2-5 OB QC	23.3	-3.46	3.01	0.92	0.99	2.13	1.32	3.05	1.65

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Summary Report 2/21/06-3/15/06**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1088	2/22/2006	background soil	bkg022206	7.5	4.65	2.87	-0.12	0.84	-0.67	1.14	-0.79	1.416050847
1089	2/22/2006	standard exclusion zone	soilstd022206	36.9	-0.65	4.02	4.84	1.24	1.78	1.65	6.62	2.064000969
1090	2/22/2006	Pre EPA	S2766 D-20 exclusion zone	28.4	-15.46	7.25	46.24	2.19	3.84	2.67	50.08	3.45325933
1091	2/22/2006	Pre EPA	S2767 D-20	23.1	3	2.82	0.54	0.87	1.34	1.17	1.88	1.458012346
1092	2/22/2006	Pre EPA	S2768 G.5-14.5	26.5	1.63	3.3	0.87	1	0.75	1.35	1.62	1.680029762
1093	2/22/2006	Pre EPA	S2769 A.5-C/5-8	28.4	-1.26	3.97	1.3	1.25	0.44	1.61	1.74	2.038283592
1094	2/22/2006	Pre EPA	S2770 C-E/6-9	30.3	1.1	3.15	1.45	0.96	-0.19	1.26	1.26	1.584045454
1095	2/22/2006	Pre EPA	S2771 I-J/2-5	22.9	1.09	3.56	1.91	1.1	0.29	1.44	2.2	1.812070639
1096	2/22/2006	Pre EPA	S2772 J-K/2-5.5	21.5	3.98	3.93	2.1	1.18	0.82	1.59	2.92	1.980025252
1097	2/23/2006	background soil	bkg022306	7.5	2.39	2.65	0.02	0.81	-0.85	1.09	-0.83	1.358013255
1098	2/23/2006	standard	soilstd022306	36.9	4.98	3.57	3.55	1.06	4.07	1.43	7.62	1.78002809
1099	2/23/2006	EPA	S2773 D-20 EPA #1	31.3	-0.24	2.29	3.1	0.7	1.52	0.93	4.62	1.164001718
1100	2/23/2006	EPA	S2774 D-20 EPA #2	32.3	4.83	1.69	2.31	0.51	0.07	0.64	2.38	0.818352003
1101	2/23/2006	EPA	S2775 D-20 EPA #3	29.4	-0.99	2.56	2.1	0.81	0.17	1.03	2.27	1.310343466
1102	2/23/2006	EPA	S2776 D-20 EPA #4	30.5	-1.72	2.58	2.4	0.8	1.48	1.07	3.88	1.336001497
1103	2/23/2006	EPA	S2777 D-20 EPA #5	30.3	-1.84	2.69	3.08	0.84	-0.04	1.09	3.04	1.376117728
1104	2/23/2006	EPA	S2778 G.5-14.5 EPA #1	31.5	0.16	2.37	1.55	0.75	1.36	0.97	2.91	1.22613213
1105	2/23/2006	EPA	S2779 G.5-14.5 EPA #2	30.3	0.14	2.25	1.24	0.69	1.27	0.93	2.51	1.158015544

## Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

### Summary Report 2/21/06-3/15/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1106	2/23/2006	EPA	S2780 G.5-14.5 EPA #3	31.3	2.71	2.14	1.37	0.65	4.04	0.89	5.41	1.102088926
1107	2/23/2006	EPA	S2781 G.5-14.5 EPA #4	30.5	-2.34	2.7	1.22	0.87	1.87	1.15	3.09	1.442012483
1108	2/23/2006	EPA	S2782 G.5-14.5 EPA #5	32.2	-1.02	3.43	1.67	1.07	1.13	1.42	2.8	1.778004499
1109	2/23/2006	EPA	S2783 A.5-C/5-8 EPA #1	34.2	-3.24	2.11	2.69	0.68	-1.35	0.85	1.34	1.08853112
1110	2/23/2006	EPA	S2784 A.5-C/5-8 EPA #2	33.3	-1.31	3.06	2.1	0.95	-0.38	1.24	1.72	1.562081944
1111	2/23/2006	EPA	S2785 A.5-C/5-8 EPA #3	33.4	-2.72	2.3	1.12	0.74	1.22	1.01	2.34	1.252078272
1112	2/23/2006	EPA	S2786 A.5-C/5-8 EPA #4	31.5	2.8	2.52	0.37	0.78	1	1.05	1.37	1.308013761
1113	2/23/2006	EPA	S2787 A.5-C/5-8 EPA #5	34.2	-1.01	2.45	0.44	0.77	1.76	1.06	2.2	1.310152663
1114	2/23/2006	EPA	S2788 C-E/6-9 EPA #1	33.4	1.62	2.07	1.39	0.63	-1.01	0.83	0.38	1.042017274
1115	2/23/2006	EPA	S2789 C-E/6-9 EPA #2	35.6	0.37	2.51	1.33	0.77	0.37	1.01	1.7	1.270039369
1116	2/23/2006	EPA	S2790 C-E/6-9 EPA #3	35.3	-0.2	2.33	0.98	0.74	0.6	0.98	1.58	1.228006515
1117	2/23/2006	EPA	S2791 C-E/6-9 EPA #4	33.4	2.55	2.14	1.07	0.66	-0.38	0.85	0.69	1.076150547
1118	2/23/2006	EPA	S2792 C-E/6-9 EPA #5	33.3	0.12	3.05	1.83	0.95	0.17	1.24	2	1.562081944
1119	2/23/2006	EPA	S2793 I-J/2-5 EPA #1	29.5	-3.9	2.07	1.79	0.66	1.31	0.88	3.1	1.1
1120	2/23/2006	EPA	S2794 I-J/2-5 EPA #2	28.7	-2.88	2.22	2.44	0.72	1.59	0.93	4.03	1.176137747
1121	2/23/2006	EPA	S2795 I-J/2-5 EPA #3	27.2	2.81	2.2	2.32	0.67	0.29	0.85	2.61	1.082312339
1122	2/23/2006	EPA	S2796 I-J/2-5 EPA #4	26.5	0	1.44	1.76	0.45	0.99	0.59	2.75	0.742024258
1123	2/23/2006	EPA	S2797 I-J/2-5 EPA #5	29.4	4.16	2	1.69	0.61	1.85	0.79	3.54	0.998098192

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 2/21/06-3/15/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1124	2/23/2006	EPA	S2798 J-K/2-5.5 EPA #1	29.7	0.08	1.93	1.52	0.6	0.75	0.79	2.27	0.992018145
1125	2/23/2006	EPA	S2799 J-K/2-5.5 EPA #2	27.6	-1.09	2.09	1.06	0.66	1.73	0.88	2.79	1.1
1126	2/23/2006	EPA	S2800 J-K/2-5.5 EPA #3	28.5	2.1	2.27	1.28	0.69	1.37	0.94	2.65	1.166061748
1127	2/23/2006	EPA	S2801 J-K/2-5.5 EPA #4	27.2	-1.35	2.2	2.7	0.69	0.83	0.91	3.53	1.142015762
1128	2/23/2006	EPA	S2802 J-K/2-5.5 EPA #5	28.6	-0.24	2.37	1.74	0.74	1.55	1	3.29	1.244025723
1129	3/2/2006	background	bkg030206	7.5	-0.18	2.24	0.19	0.69	-0.73	0.93	-0.54	1.158015544
1130	3/2/2006	soil standard exclusion	soilstd030206	36.9	2.45	3.04	5.92	0.9	1.09	1.14	7.01	1.452446212
1131	3/2/2006	zone	S2803 I-10.5	27.6	19.24	8.06	56.76	2.32	4.93	2.79	61.69	3.62856721
1132	3/2/2006	Pre EPA	S2804 K-L/2-6 Pre EPA	28.5	-3.58	3.72	2.42	1.19	0.18	1.55	2.6	1.954123845
1133	3/2/2006	Pre EPA	S2805 L-M/1.5-6 Pre EPA	28.9	-2.36	3.01	1.81	0.96	0.31	1.27	2.12	1.592011306
1134	3/2/2006	Pre EPA	S2806 H-10 Pre EPA	23.6	0.16	3.5	1.9	1.07	2.89	1.47	4.79	1.818185909
1135	3/2/2006	Pre EPA exclusion	S2807 J.5-9.5 Pre EPA	29.4	1.91	3.32	1.89	1.04	1.11	1.32	3	1.680476123
1136	3/2/2006	zone	S2808 I.5-4	21.5	13.59	3.95	1.07	1.17	14.48	1.66	15.55	2.030886506
1137	3/2/2006	Pre EPA	S2809 I.5-4	27.6	6.86	3.29	1.01	0.99	3.27	1.32	4.28	1.65
1138	3/8/2006	background	bkg030806	7.5	-2.14	2.59	-0.41	0.86	0.15	1.14	-0.26	1.428005602
1139	3/8/2006	soil standard exclusion	soilstd030806	36.9	-0.25	4.22	5.1	1.29	2.44	1.69	7.54	2.126076198
1141	3/8/2006	zone exclusion	S2810 H.5-6	18.3	-4.35	2.76	4.42	0.89	1.17	1.14	5.59	1.446271067
1142	3/8/2006	zone	S2811 J-6.5	27.6	3.31	6.06	29.75	1.79	7.09	2.23	36.84	2.859545418
1143	3/8/2006	EPA	S2812 K-L/2-6 EPA #1	31.6	0.92	1.9	0.86	0.59	1.72	0.78	2.58	0.97800818
1144	3/8/2006	EPA	S2813 K-L/2-6 EPA #2	32.5	6.41	2.56	0.65	0.75	1.76	1.02	2.41	1.266056871
1145	3/8/2006	EPA	S2814 K-L/2-6 EPA #3	30.3	-0.19	2.24	0.37	0.7	1.9	0.95	2.27	1.180042372
1146	3/8/2006	EPA	S2815 K-L/2-6 EPA #4	32.7	-0.11	2.16	0.52	0.67	2.12	0.9	2.64	1.12200713
1147	3/8/2006	EPA	S2816 K-L/2-6 EPA #5	31.4	1.06	2.65	1.27	0.82	1.69	1.1	2.96	1.372005831
1148	3/8/2006	EPA	S2817 L-M/2-6 EPA #1	35.9	-0.4	2.63	0.88	0.82	1.02	1.11	1.9	1.380036231
1149	3/8/2006	EPA	S2818 L-M/2-6 EPA #2	33.5	-2.35	1.8	1.53	0.58	-0.36	0.75	1.17	0.94810337
1150	3/8/2006	EPA	S2819 L-M/2-6 EPA #3	32.9	-1.51	2.25	1.57	0.71	-1.38	0.92	0.19	1.16211015
1151	3/8/2006	EPA	S2820 L-M/2-6 EPA #4	34.6	3.28	2.69	0.64	0.81	-0.38	1.1	0.26	1.366052708
1152	3/8/2006	EPA	S2821 L-M/2-6 EPA #5	34.7	4.16	2.24	0.49	0.68	1.21	0.89	1.7	1.120044642
1153	3/8/2006	EPA	S2822 H-10 EPA #1	32.2	2.87	1.97	1.44	0.6	1.92	0.8	3.36	1
1154	3/8/2006	EPA	S2823 H-10 EPA #2	33.5	-1.56	2.15	2.7	0.68	0.52	0.88	3.22	1.112115102
1155	3/8/2006	EPA	S2824 H-10 EPA #3	33.3	2.49	2.08	1.35	0.63	1.55	0.85	2.9	1.058017013

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 2/21/06-3/15/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1156	3/8/2006	EPA	S2825 H-10 EPA #4	32.5	1.71	2.16	2.04	0.66	1.15	0.88	3.19	1.1
1157	3/8/2006	EPA	S2826 H-10 EPA #5	32.8	-4.09	2.27	2.85	0.73	0.58	0.95	3.43	1.1980818
1158	3/8/2006	EPA	S2827 J.5-9.5 EPA #1	25.6	2.77	3.19	1.14	0.98	3	1.33	4.14	1.652059321
1159	3/8/2006	EPA	S2828 J.5-9.5 EPA #2	23.7	3.07	2.65	1.49	0.81	2.18	1.09	3.67	1.358013255
1160	3/8/2006	EPA	S2829 J.5-9.5 EPA #3	24.5	-0.58	2.36	1.54	0.75	3.77	1.02	5.31	1.266056871
1161	3/8/2006	EPA	S2830 J.5-9.5 EPA #4	25.7	-0.01	2.75	2.02	0.85	2.68	1.18	4.7	1.454269576
1162	3/8/2006	EPA	S2831 J.5-9.5 EPA #5	25.6	0.86	2.49	2.15	0.78	1.4	1.03	3.55	1.292013932
1163	3/14/2006	background soil	bkg031406	7.5	1.46	2.55	-0.61	0.78	1.13	1.12	0.52	1.364844313
1164	3/14/2006	standard	soilstd031406	36.9	3.44	4.94	3.32	1.52	4.55	2.01	7.87	2.520019841
1165	3/14/2006	Pre EPA	S2832 G.5-H.5/5-8	28.6	-1.09	2.22	1.8	0.7	2	0.93	3.8	1.164001718
1166	3/14/2006	Pre EPA	S2833 H.5-J/5.5-8.5	25.5	-2.19	2.74	2.81	0.85	1.21	1.13	4.02	1.414001414
1167	3/14/2006	Pre EPA	S2834 J-K.5/6-9	32.3	-3.75	2.68	3.08	0.84	1.72	1.13	4.8	1.408012784
1168	3/14/2006	EPA	S2835 G.5-H.5/5-8 EPA #1	24.7	3.53	2.44	1.58	0.74	0.87	0.97	2.45	1.220040983
1169	3/14/2006	EPA	S2836 G.5-H.5/5-8 EPA #2	24.6	0.87	2.55	1.26	0.78	2.24	1.07	3.5	1.324122351
1170	3/14/2006	EPA	S2837 G.5-H.5/5-8 EPA #3	25.8	2.7	2.87	1.73	0.88	2.15	1.19	3.88	1.480033783
1171	3/14/2006	EPA	S2838 G.5-H.5/5-8 EPA #4	24.6	3.01	2.94	0.88	0.9	2.72	1.23	3.6	1.524106296
1172	3/14/2006	EPA	S2839 G.5-H.5/5-8 EPA #5	23.2	0.89	2.11	0.82	0.66	1.97	0.88	2.79	1.1
1173	3/14/2006	EPA	S2840 H.5-J/5.5-8.5 EPA#1	25.2	-1.64	2.96	3.22	0.92	0.25	1.2	3.47	1.512084654
1174	3/14/2006	EPA	S2841 H.5-J/5.5-8.5 EPA#2	26.3	-0.96	2.2	2.16	0.69	1.99	0.9	4.15	1.13406349
1175	3/14/2006	EPA	S2842 H.5-J/5.5-8.5 EPA#3	24.3	-2.16	2.55	2.53	0.79	1.2	1.05	3.73	1.314001522
1176	3/14/2006	EPA	S2843 H.5-J/5.5-8.5 EPA#4	27.4	1.55	2.73	2.55	0.84	1.01	1.1	3.56	1.384052022
1177	3/14/2006	EPA	S2844 H.5-J/5.5-8.5 EPA#5	26.8	3.29	3.23	1.68	0.97	1.32	1.29	3	1.614001239
1178	3/14/2006	EPA	S2845 J-K.5/6-9 EPA#1	33.2	0.77	1.94	1.13	0.6	0.77	0.81	1.9	1.008017857
1179	3/14/2006	EPA	S2846 J-K.5/6-9 EPA#2	33.6	0.06	1.88	3.15	0.58	-1.19	0.73	1.96	0.93236259
1180	3/14/2006	EPA	S2847 J-K.5/6-9 EPA#3	33.5	4.94	3.35	0.69	1.02	0.99	1.35	1.68	1.692010638
1181	3/14/2006	EPA	S2848 J-K.5/6-9 EPA#4	33.8	4.51	1.94	-0.25	0.59	2.51	0.81	2.26	1.0020978
1182	3/14/2006	EPA	S2849 J-K.5/6-9 EPA#5	34.2	2.39	2.02	0.65	0.62	0.66	0.83	1.31	1.036001931
1183	3/14/2006	EPA	S2850 K-L/11.5-12 EPA#1	29.2	2.87	2.47	1.14	0.76	4.31	1.03	5.45	1.280039062
1184	3/14/2006	EPA	S2851 K-L/11.5-12 EPA#2	27.4	9.89	2.55	0.74	0.74	3.57	1.02	4.31	1.26015872
1185	3/14/2006	EPA	S2851 K-L/11.5-12 EPA#3	27.7	1.13	2.46	2.18	0.75	1.92	1.01	4.1	1.258014308

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Summary Report 3/16/06-5/31/06**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1186	5/10/2006	background soil	bkg051006	7.5	-0.84	2.26	-1.87	0.74	0.94	1.08	-0.93	1.309198228
1187	5/10/2006	standard	soilstd051006	36.9	4.74	3.77	4.44	1.12	2.06	1.49	6.5	1.864001073
1188	5/10/2006	exclusion zone	S2853 A.5-4	31.5	17.88	5.58	31.53	1.62	6.13	1.99	37.66	2.566028059
1189	5/10/2006	exclusion zone	S2854 2-North Wall	27.6	2.87	4.68	6.95	1.4	1.33	1.74	8.28	2.233293532
1190	5/10/2006	exclusion zone	S2855 A.5-West Wall	30.1	14.48	4.9	14.5	1.44	3.14	1.77	17.64	2.281775624
1191	5/10/2006	exclusion zone	S2856 B.5-West Wall	23.3	-4.39	2.52	6.5	0.8	-0.45	0.98	6.05	1.265069168
1192	5/10/2006	Pre-EPA	S2857 A-A.5/1.5-6.5	26.4	-0.16	2.72	1.63	0.85	-0.18	1.11	1.45	1.398070098
1193	5/10/2006	Pre-EPA	S2858 A.5-B.5/1-5	31.3	3.65	3.96	3.5	1.16	-1.33	1.46	2.17	1.864725181
1194	5/15/2006	background soil	bkg051506	7.5	1.97	2.39	-1.13	0.72	0.26	1.03	-0.87	1.256702033
1195	5/15/2006	standard	soilstd051506	36.9	-1.56	4.6	5.06	1.41	2.04	1.87	7.1	2.342007686
1196	5/15/2006	EPA	S2859 A-A.5/1.5-6.5 EPA#1	35.1	0.7	2.22	1.29	0.68	1.32	0.92	2.61	1.144027972
1197	5/15/2006	EPA	S2860 A-A.5/1.5-6.5 EPA#2	33.5	-0.48	1.78	1.61	0.57	0.31	0.73	1.92	0.926174929
1198	5/15/2006	EPA	S2861 A-A.5/1.5-6.5 EPA#3	32.6	3.66	3.55	1.27	1.09	0.34	1.37	1.61	1.75071414
1199	5/15/2006	EPA	S2862 A-A.5/1.5-6.5 EPA#4	34.3	-3.3	2.57	1.4	0.84	0.8	1.11	2.2	1.392012931
1200	5/15/2006	EPA	S2863 A-A.5/1.5-6.5 EPA#5	33.5	-1.43	3.93	2.76	1.24	-1.51	1.6	1.25	2.024252949
1201	5/15/2006	EPA	S2864 A.5-B.5/1.5-5 EPA#1	33.4	1.12	2.54	1.82	0.79	1.09	1.03	2.91	1.298075499

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 3/16/06-5/31/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1202	5/15/2006	EPA	S2865 A.5-B.5/1.5-5 EPA#2	35.3	2.03	2.06	1.74	0.63	1.72	0.84	3.46	1.05
1203	5/15/2006	EPA	S2866 A.5-B.5/1.5-5 EPA#3	32.3	0.76	2	0.31	0.63	2.16	0.86	2.47	1.06606754
1204	5/15/2006	EPA	S2867 A.5-B.5/1.5-5 EPA#4	34.4	-1.07	2.27	1.69	0.72	0.55	0.92	2.24	1.168246549
1205	5/15/2006	EPA	S2868 A.5-B.5/1.5-5 EPA#5	35.1	-3.81	2.17	1.77	0.7	2.29	0.94	4.06	1.172006826
1206	5/22/2006	background	bkg052206	7.5	-0.28	4.12	0.11	1.25	-0.63	1.83	-0.52	2.216167864
1207	5/22/2006	soil standard	soilstd052206	36.9	5.88	2.72	5.05	0.82	2.31	1.06	7.36	1.340149245
1208	5/22/2006	exclusion zone	S2869 West Wall @L	25.6	-0.4	2.61	3.4	0.79	1.41	1.06	4.81	1.322006051
1209	5/22/2006	exclusion zone	S2870 West Wall @M	25.5	-2.95	3.37	5.06	1.06	5.49	1.38	10.55	1.740114939
1210	5/22/2006	overburden	S2871 NW Corner OB#1	22.2	-2.07	2.35	0.82	0.75	1.72	1.03	2.54	1.274127152
1211	5/22/2006	overburden	S2872 NW Corner OB#2	25.6	3.03	2.91	0.59	0.9	1.41	1.2	2	1.5
1212	5/22/2006	overburden	S2873 NW Corner OB#3	22.3	2.03	4.42	1.98	1.35	1.4	1.86	3.38	2.298281967
1213	5/22/2006	overburden	S2874 NW Corner OB#4	22.5	-0.57	3.49	1.07	1.1	1.33	1.46	2.4	1.828004376
1214	5/22/2006	overburden	S2875 NW Corner OB QC	19.7	4.38	2.89	0.92	0.86	0.83	1.14	1.75	1.428005602
1215	5/22/2006	Pre EPA	S2876 I.5-M.5/1.5-2.5	29.3	7.77	2.59	0.62	0.76	-0.77	1.01	-0.15	1.264001582
1216	5/22/2006	Pre EPA	S2877 M-M.5/2.5-6.5	27.5	-0.31	3.87	1.88	1.2	0.14	1.57	2.02	1.976081982
1217	5/22/2006	EPA	S2878 I.5-M.5/1.5-2.5 EPA #1	32.4	3.23	2.24	0.58	0.66	0.41	0.9	0.99	1.116064514
1218	5/22/2006	EPA	S2879 I.5-M.5/1.5-2.5 EPA #2	32.5	0.1	2.32	1.26	0.73	-0.19	0.96	1.07	1.206026534
1219	5/22/2006	EPA	S2880 I.5-M.5/1.5-2.5 EPA #3	32.3	1.78	2.33	0.44	0.71	0.78	0.95	1.22	1.186001686

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## Summary Report 3/16/06-5/31/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1220	5/22/2006	EPA	S2881 I.5-M.5/1.5-2.5 EPA #4	31.3	-0.39	1.28	1.31	0.4	-0.21	0.53	1.1	0.664003012
1221	5/22/2006	EPA	S2882 I.5-M.5/1.5-2.5 EPA #5	31.6	0.65	2.2	0.51	0.69	0.36	0.92	0.87	1.15
1222	5/22/2006	EPA	S2883 M-M.5/2.5-6.5 EPA #1	28.3	3.66	2.79	0.7	0.84	1	1.14	1.7	1.416050847
1223	5/22/2006	EPA	S2884 M-M.5/2.5-6.5 EPA #2	28.5	-1.53	2.34	1.91	0.73	1.89	0.98	3.8	1.222006547
1224	5/22/2006	EPA	S2885 M-M.5/2.5-6.5 EPA #3	28.6	2.68	3.99	0.78	1.22	3.57	1.7	4.35	2.092462664
1225	5/22/2006	EPA	S2886 M-M.5/2.5-6.5 EPA #4	28.3	5.83	1.9	1.65	0.56	1.11	0.74	2.76	0.928008621
1226	5/22/2006	EPA	S2887 M-M.5/2.5-6.5 EPA #5	28.5	0.45	2.45	1.21	0.75	1.97	1.03	3.18	1.274127152
1227	5/25/2006	background soil	bkg052506	7.5	-4.28	2.6	0.52	0.89	-0.94	1.16	-0.42	1.462087549
1228	5/25/2006	standard	soilstd052506	36.9	-3.3	4.39	5.9	1.4	0.99	1.8	6.89	2.28035085
1229	5/25/2006	EPA	S2888 M.5-N/3-4 EPA#1	34.4	0.38	2.94	1.83	0.9	-1.25	1.19	0.58	1.492012064
1230	5/25/2006	EPA	S2889 M.5-N/3-4 EPA#2	36.6	2.71	1.97	1.16	0.6	-0.4	0.79	0.76	0.992018145
1231	5/25/2006	EPA	S2890 M.5-N/3-4 EPA#3	35.2	6.83	3.03	0.73	0.87	1.03	1.18	1.76	1.466049112
1232	5/25/2006	EPA	S2891 M.5-N/3-4 EPA#4	34.5	4.45	1.91	0.41	0.58	0.28	0.76	0.69	0.956033472
1233	5/25/2006	EPA	S2892 M.5-N/3-4 EPA#5	36.6	1.29	2.27	1.4	0.7	-0.07	0.91	1.33	1.148085363
1234	5/25/2006	EPA	S2893 M.5-N/6-6.5 EPA#1	34.5	1.84	2.52	1.22	0.77	1.15	1.01	2.37	1.270039369
1235	5/25/2006	EPA	S2894 M.5-N/6-6.5 EPA#2	34.1	-1.82	2.81	1.76	0.89	-0.2	1.16	1.56	1.462087549
1236	5/25/2006	EPA	S2895 M.5-N/6-6.5 EPA#3	33.3	-0.05	2.26	0.57	0.72	0.71	0.93	1.28	1.176137747
1237	5/25/2006	EPA	S2896 M.5-N/6-6.5 EPA#4	35.5	1.94	3.62	1.48	1.16	-0.28	1.48	1.2	1.880425484
1238	5/25/2006	EPA	S2897 M.5-N/6-6.5 EPA#5	35.2	1.85	2.68	1.85	0.81	-0.68	1.05	1.17	1.326122166
1239	5/25/2006	EPA	S2898 E-G/1.5-4.5 EPA#1	30.2	6.23	2.59	1.04	0.77	3.09	1.06	4.13	1.310152663
1240	5/25/2006	EPA	S2899 E-G/1.5-4.5 EPA#2	28.5	3	2.31	1.3	0.71	2.43	0.96	3.73	1.1940268
1241	5/25/2006	EPA	S2900 E-G/1.5-4.5 EPA#3	29.4	2.18	3.6	2.54	1.09	0.09	1.41	2.63	1.782189664
1242	5/25/2006	EPA	S2901 E-G/1.5-4.5 EPA#4	28.5	1.8	3.15	1.38	0.96	1.8	1.33	3.18	1.640274367
1243	5/25/2006	EPA	S2902 E-G/1.5-4.5 EPA#5	28.3	-0.07	2.46	0.4	0.77	3.36	1.06	3.76	1.310152663
1244	5/25/2006	EPA	S2903 G-H.5/1.5-4 EPA#1	27.5	2.19	2.51	0.85	0.76	4.58	1.07	5.43	1.312440475
1245	5/25/2006	EPA	S2904 G-H.5/1.5-4 EPA#2	25.6	0.43	2.62	1.78	0.81	2.71	1.09	4.49	1.358013255
1246	5/25/2006	EPA	S2905 G-H.5/1.5-4 EPA#3	27.6	0.03	2.57	3.26	0.79	0.13	1.01	3.39	1.282263623
1247	5/25/2006	EPA	S2906 G-H.5/1.5-4 EPA#4	28.3	-0.72	2.49	1.8	0.78	2.22	1.04	4.02	1.3
1248	5/25/2006	EPA	S2907 G-H.5/1.5-4 EPA#5	26.8	-4.5	2.98	3.53	0.95	0.09	1.27	3.62	1.586001261
1249	5/30/2006	background soil	bkg053006	7.5	-0.49	2.66	-0.43	0.84	0.96	1.21	0.53	1.472990156
1250	5/30/2006	standard exclusion	soilstd053006	36.9	-7.81	3.14	6.28	1.02	0.42	1.29	6.7	1.644536409
1251	5/30/2006	zone	S2908 F.5-3	20.6	-1.3	4.36	17.72	1.32	6.63	1.67	24.35	2.12868504

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 3/16/06-5/31/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1252	5/30/2006	overburden	S2909 SW Corner OB #1	19.6	7.27	3.38	-1.18	1.02	3.68	1.39	2.5	1.724093965
1253	5/30/2006	overburden	S2910 SW Corner OB #2	18.7	-1.55	2.98	0.53	0.94	2.96	1.31	3.49	1.612358521
1254	5/30/2006	overburden	S2911 SW Corner OB #3	19.9	2.44	2.24	0.19	0.71	3.66	0.97	3.85	1.202081528
1255	5/30/2006	overburden	S2912 SW Corner OB QC	20.8	0.12	2.61	0.01	0.82	1.78	1.17	1.79	1.428740704
1256	5/30/2006	Pre EPA	S2913 E-G/1.5-4.5	28.3	6.56	3.61	3.07	1.09	1.14	1.36	4.21	1.742899882
1257	5/30/2006	Pre EPA	S2914 G-H.5/1.5-4	23.6	7.97	2.94	-0.77	0.86	2.16	1.19	1.39	1.468230227
1258	5/30/2006	EPA	S2915 C-E/1-1.5 EPA #1	34.2	1.18	1.95	-0.09	0.6	0	0.82	-0.09	1.016070864
1259	5/30/2006	EPA	S2916 C-E/1-1.5 EPA #2	34.5	1.69	1.83	0.22	0.56	-0.65	0.74	-0.43	0.928008621
1260	5/30/2006	EPA	S2917 C-E/1-1.5 EPA #3	35.4	-1.92	2.58	0.28	0.82	0.11	1.11	0.39	1.380036231
1261	5/30/2006	EPA	S2918 C-E/1-1.5 EPA #4	34.6	0.25	2.47	-0.01	0.78	-0.16	1.05	-0.17	1.308013761
1262	5/30/2006	EPA	S2919 C-E/1-1.5 EPA #5	34.3	0.34	1.98	0.22	0.61	-0.85	0.84	-0.63	1.038123307
1263	5/31/2006	background soil	bkg053106	7.5	2.46	2.89	-0.29	0.88	-0.63	1.23	-0.92	1.512382227
1264	5/31/2006	standard	soilstd053106	36.9	-4.23	3.61	5.81	1.12	1.42	1.43	7.23	1.816397534
1265	5/31/2006	EPA	S2920 A-C/1-1.5 EPA #1	36.4	3.51	3.02	1.81	0.9	-1.07	1.15	0.74	1.460308187
1266	5/31/2006	EPA	S2921 A-C/1-1.5 EPA #2	34.2	3.44	2.12	0.9	0.64	-0.6	0.84	0.3	1.056030303
1267	5/31/2006	EPA	S2922 A-C/1-1.5 EPA #3	34.6	1.33	2.65	-0.71	0.85	1.78	1.16	1.07	1.43808901
1268	5/31/2006	EPA	S2923 A-C/1-1.5 EPA #4	34.5	2.56	2.91	-0.15	0.92	1.16	1.21	1.01	1.520032894
1269	5/31/2006	EPA	S2924 A-C/1-1.5 EPA #5	35.3	5.52	3.34	0.27	1	-0.34	1.27	-0.07	1.61644672

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Summary Report 6/1/06 - 8/10/06

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1270	8/7/2006	background	bkg080706	7.5	-1.41	2.66	-0.6	0.84	-0.19	1.17	-0.79	1.440312466
1271	8/7/2006	soil standard	soilstd080706	36.9	8.13	4.45	5.02	1.28	1.44	1.68	6.46	2.112060605
1272	8/7/2006	EPA	S2925 A.5-B/10-11 EPA #1	28.6	3.84	2.06	0.86	0.62	2.76	0.85	3.62	1.052093152
1273	8/7/2006	EPA	S2926 A.5-B/10-11 EPA #2	28.4	-0.53	3.09	1.44	0.96	1.51	1.29	2.95	1.608011194
1274	8/7/2006	EPA	S2927 A.5-B/10-11 EPA #3	28.6	3.52	3.51	1.59	1.08	1.52	1.45	3.11	1.808009956
1275	8/7/2006	EPA	S2928 A.5-B/10-11 EPA #4	27.5	-0.67	2.75	3.28	0.85	-0.32	1.09	2.96	1.382244551
1276	8/7/2006	EPA	S2929 A.5-B/10-11 EPA #5	27.7	-6.64	2.99	2.83	0.99	0.65	1.33	3.48	1.658010856
1277	8/7/2006	EPA	S2930 E-E.5/18-19.5 EPA #1	27.9	-1.65	2.09	1.34	0.66	-0.26	0.87	1.08	1.092016483
1278	8/7/2006	EPA	S2931 E-E.5/18-19.5 EPA #2	30.5	-1.88	2.3	1.5	0.73	0.78	0.97	2.28	1.214001647
1279	8/7/2006	EPA	S2932 E-E.5/18-19.5 EPA #3	29.3	4.86	2.57	0.67	0.78	0.23	1	0.9	1.268227109
1280	8/7/2006	EPA	S2933 E-E.5/18-19.5 EPA #4	27.3	3.02	3.14	1.79	0.93	-0.55	1.23	1.24	1.542011673
1281	8/7/2006	EPA	S2934 E-E.5/18-19.5 EPA #5	28.6	-0.59	2.03	1.33	0.64	-0.06	0.86	1.27	1.072007463
1282	8/10/2006	bkg	bkg081006	7.5	-0.26	1.89	-0.55	0.59	0.03	0.84	-0.52	1.026498904
1283	8/10/2006	soil standard	soilstd081006	36.9	0.89	3.25	5.24	1	2.16	1.3	7.4	1.640121947
1288	8/10/2006	EPA	S2935 F.5-G/14-15 EPA #1	31.4	3.68	2.96	1.92	0.88	-0.87	1.14	1.05	1.440138882
1289	8/10/2006	EPA	S2936 F.5-G/14-15 EPA #2	30.6	-4.92	2.73	2.78	0.87	-0.4	1.16	2.38	1.45

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Summary Report 6/1/06 - 8/10/06**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1290	8/10/2006	EPA	S2937 F.5-G/14-15 EPA #3	27.5	3.6	2.25	0.36	0.69	-0.01	0.88	0.35	1.118257573
1291	8/10/2006	EPA	S2938 F.5-G/14-15 EPA #4	31.3	1.91	3.63	1.11	1.11	0.65	1.51	1.76	1.874086444
1292	8/10/2006	EPA	S2939 F.5-G/14-15 EPA #5	31.2	-0.28	1.68	1.1	0.53	0.93	0.7	2.03	0.878009112

Notes:

- 1) The sample indicated as "background" is an empty vial inserted into the instrument in the same manner as a soil sample. The empty vial is used to verify that absence of background influences (positive or negative) on the instrumentation. Acceptable results for the background sample are  $\pm 1.0$  pCi/g.
- 2) The sample indicated as "soil standard" is a soil sample in the range of the USEPA cleanup level of 7.1 pCi/g total radium. The soil sample was from one of the initial remedial projects in the Streeterville area. It was originally used as a cross-check between laboratories during the initial projects and is now used as daily consistency sample to show repeatability of the instrumentation.

## APPENDIX C

### USEPA Signed Notification of Successful Verification Sampling Forms



**Infrastructure Remediation  
Notice of Successful Verification Summary  
400 E. Illinois Street**

Location	Survey Grid Designation	USEPA Signature Date
<b>Former Parcel K and Parcel 21 Excavations</b>	B.5-F.5/1-2	2/3/2006
	B.5-F.5/2-3	2/3/2006
	B.5-F.5/3-4	2/3/2006
	B.5-F.5/4-5	2/3/2006
	C-E.5/5-6	2/3/2006
	A.5-C/5-8	2/24/2006
	C-E/6-9	2/24/2006
	D/20	2/24/2006
	G.5/14.5	2/24/2006
	I-J/2-5	2/24/2006
	J-K/2-5.5	2/24/2006
	H/10	3/22/2007
	J.5/9.5	3/9/2006
	K-L/2-6	3/9/2006
	L-M/2-6	3/9/2006
	G.5-H.5/5-8	3/15/2006
	H.5-J/5.5-8.5	3/15/2006
	J-K.5/6-9	3/15/2006
	K-L/11.5-12	3/15/2006
	A-A.5/1.5-6.5	5/15/2006
	A.5-B.5/1.5-5	5/15/2006
	I.5-M.5/1.5-2.5	5/23/2006
	M-M.5/2.5-6.5	5/23/2006
	E-G/1.5-4.5	5/26/2006
	G-H.5/1.5-4	5/26/2006
	M.5-N/3-4	5/26/2006
	M.5-N/6-6.5	5/26/2006
	A-C/1-1.5	5/31/2006
	C-E/1-1.5	5/31/2006
	A.5-B/10-11	8/8/2006
	E-E.5/18-19.5	8/8/2006
	F.5-G/14-15	8/10/2006

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification:

B.5-F.5/1-2

Date of Verification Survey:

2/2/06

Time of Verification Survey

1:00-3:00am/pm pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed:



Date

2/3/06

Print Name

Steve Kornder

Print Title

Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/3/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date

2/3/06

Print Name

Verneta Simon

Print Title

On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: B.5-F.5/2-3  
Date of Verification Survey: 2/2/06  
Time of Verification Survey 1:00 - 3:00 am/pm pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]  
Date 2/3/06  
Print Name Steve Korndorfer  
Print Title Senior Project Geotechnical

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/3/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/3/06  
Print Name Verneta Simon  
Print Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: B.5-P.5/3-4Date of Verification Survey: 2/2/06Time of Verification Survey 1:00 - 3:00 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date 2/3/06Print Name Steve KorndorPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/3/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/3/06Print Name Verneta SimonPrint Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: B.5 - F.5H-5Date of Verification Survey: 2/2/06Time of Verification Survey 1:00 - 3:00 am ☒ pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Date 2/3/06Print Name Steve KorndorPrint Title Senior Project Geotechnist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/3/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/3/06Print Name Verneta SimonPrint Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: C-E.5/5-6Date of Verification Survey: 2/2/06Time of Verification Survey 1200 - 300 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date 2/3/06Print Name Steve KorndorPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/3/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/3/06Print Name Verneta SimonPrint Title On-Site Coordinator

For USEPA Region 5

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Exclusion Zone Confirmatory Samples for February 2, 2006

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1044	2/2/2006	EPA	S2729 B.5-F.5/1-2 EPA #1	31.7	3.25	1.82	2.61	0.55	0.99	0.71	3.6	0.898109125
1045	2/2/2006	EPA	S2730 B.5-F.5/1-2 EPA #2	32.3	-1.11	2.42	4.65	0.74	-1.15	0.9	3.5	1.165160933
1046	2/2/2006	EPA	S2731 B.5-F.5/1-2 EPA #3	35.7	5.44	2.62	2.66	0.78	0.52	1	3.18	1.268227109
1047	2/2/2006	EPA	S2732 B.5-F.5/1-2 EPA #4	34.5	-0.2	1.97	3.12	0.61	1.99	0.8	5.11	1.006031809
1048	2/2/2006	EPA	S2733 B.5-F.5/1-2 EPA #5	33.6	2.81	2.52	3.26	0.77	1	0.99	4.26	1.254192968

Average Total Radium (Th-232+Ra-226) Concentration for : B.5-F.5/1-2 EPA: 3.93 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1049	2/2/2006	EPA	S2734 B.5-F.5/2-3 EPA #1	34.3	0.87	2.53	3.74	0.75	-0.48	0.97	3.26	1.22613213
1050	2/2/2006	EPA	S2735 B.5-F.5/2-3 EPA #2	33.3	-4.84	2.11	1.63	0.69	2.31	0.91	3.94	1.142015762
1051	2/2/2006	EPA	S2736 B.5-F.5/2-3 EPA #3	35.2	2.23	2.58	1.52	0.79	1.66	1.06	3.18	1.322006051
1052	2/2/2006	EPA	S2737 B.5-F.5/2-3 EPA #4	34.3	2.43	1.91	3.46	0.59	-0.45	0.73	3.01	0.938616002
1053	2/2/2006	EPA	S2738 B.5-F.5/2-3 EPA #5	35.5	-1.56	2.29	2.73	0.71	0.58	0.92	3.31	1.16211015

Average Total Radium (Th-232+Ra-226) Concentration for : B.5-F.5/2-3 EPA: 3.34 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1054	2/2/2006	EPA	S2739 B.5-F.5/3-4 EPA #1	34.1	3.91	1.86	0.84	0.56	1.41	0.76	2.25	0.944033898
1055	2/2/2006	EPA	S2740 B.5-F.5/3-4 EPA #2	32.3	-0.22	2.32	1.73	0.72	1.17	0.94	2.9	1.184060809
1056	2/2/2006	EPA	S2741 B.5-F.5/3-4 EPA #3	33.5	-0.58	2.24	2.18	0.7	0.08	0.89	2.26	1.132298547
1057	2/2/2006	EPA	S2742 B.5-F.5/3-4 EPA #4	31.3	-0.59	1.79	1.86	0.56	1.1	0.74	2.96	0.928008621
1058	2/2/2006	EPA	S2743 B.5-F.5/3-4 EPA #5	29.2	0.05	1.96	0.93	0.61	1.56	0.83	2.49	1.030048543

Average Total Radium (Th-232+Ra-226) Concentration for : B.5-F.5/3-4 EPA: 2.57 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1059	2/2/2006	EPA	S2744 B.5-F.5/4-5 EPA #1	32.5	4.92	1.83	-0.2	0.55	1.6	0.75	1.4	0.930053762
1060	2/2/2006	EPA	S2745 B.5-F.5/4-5 EPA #2	32.4	1.63	3.05	1.13	0.92	0	1.26	1.13	1.5601282
1061	2/2/2006	EPA	S2746 B.5-F.5/4-5 EPA #3	31.3	4.11	1.51	-0.03	0.46	1.14	0.62	1.11	0.772010363
1062	2/2/2006	EPA	S2747 B.5-F.5/4-5 EPA #4	33.3	6.97	2.1	-0.68	0.62	2.01	0.87	1.33	1.068316433
1063	2/2/2006	EPA	S2748 B.5-F.5/4-5 EPA #5	32.9	2.09	1.87	1.8	0.57	-1.02	0.71	0.78	0.910494371

Average Total Radium (Th-232+Ra-226) Concentration for : B.5-F.5/4-5 EPA: 1.15 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1064	2/2/2006	EPA	S2749 C-E.5/5-6 EPA #1	32.6	-1.73	2.77	2.36	0.86	1.99	1.18	4.35	1.46013698
1065	2/2/2006	EPA	S2750 C-E.5/5-6 EPA #2	31.3	0.5	2.08	2.6	0.64	-0.6	0.81	2	1.032327467
1066	2/2/2006	EPA	S2751 C-E.5/5-6 EPA #3	32.7	-4.06	2.65	3.17	0.84	-0.8	1.08	2.37	1.36821051
1067	2/2/2006	EPA	S2752 C-E.5/5-6 EPA #4	32.5	-0.4	1.78	2.34	0.56	1	0.74	3.34	0.928008621
1068	2/2/2006	EPA	S2753 C-E.5/5-6 EPA #5	32.4	1.36	1.97	2	0.6	0.57	0.78	2.57	0.984073168
Average Total Radium (Th-232+Ra-226) Concentration for : C-E.5/5-6 EPA: 2.93 pCi/g												

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: A.5-C / 5-8  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST / ALTERNATE OSC FOR YVONETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: C-E/6-9  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST / ALTERNATE DSC FOR VERNETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: D-20  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST / ALTERNATE OSC FOR VERNETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: 6.5 - 14.5  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST / ALTERNATE OSC FOR VENETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: I-5/2-5  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 (am)pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]  
Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title ~~REGIONAL~~ HEALTH PHYSICIST/ALTERNATE OSC FOR VERNETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: J-K/ 2-5.5  
Date of Verification Survey: 2/23/06  
Time of Verification Survey 9-11 ampm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 2/23/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 2/24/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 2/24/2006

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST / ALTERNATE OSL FOR VERNETA SIMON

For USEPA Region 5

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Exclusion Zone Confirmatory Samples for February 23, 2006**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1099	2/23/2006	EPA	S2773 D-20 EPA #1	31.3	-0.24	2.29	3.1	0.7	1.52	0.93	4.62	1.164001718
1100	2/23/2006	EPA	S2774 D-20 EPA #2	32.3	4.83	1.69	2.31	0.51	0.07	0.64	2.38	0.818352003
1101	2/23/2006	EPA	S2775 D-20 EPA #3	29.4	-0.99	2.56	2.1	0.81	0.17	1.03	2.27	1.310343466
1102	2/23/2006	EPA	S2776 D-20 EPA #4	30.5	-1.72	2.58	2.4	0.8	1.48	1.07	3.88	1.336001497
1103	2/23/2006	EPA	S2777 D-20 EPA #5	30.3	-1.84	2.69	3.08	0.84	-0.04	1.09	3.04	1.376117728
Average Total Radium (Th-232+Ra-226) Concentration for :											D-20	3.24 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1104	2/23/2006	EPA	S2778 G.5-14.5 EPA #1	31.5	0.16	2.37	1.55	0.75	1.36	0.97	2.91	1.22613213
1105	2/23/2006	EPA	S2779 G.5-14.5 EPA #2	30.3	0.14	2.25	1.24	0.69	1.27	0.93	2.51	1.158015544
1106	2/23/2006	EPA	S2780 G.5-14.5 EPA #3	31.3	2.71	2.14	1.37	0.65	4.04	0.89	5.41	1.102088926
1107	2/23/2006	EPA	S2781 G.5-14.5 EPA #4	30.5	-2.34	2.7	1.22	0.87	1.87	1.15	3.09	1.442012483
1108	2/23/2006	EPA	S2782 G.5-14.5 EPA #5	32.2	-1.02	3.43	1.67	1.07	1.13	1.42	2.8	1.778004499
Average Total Radium (Th-232+Ra-226) Concentration for :											G.5-14.5	3.34 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1109	2/23/2006	EPA	S2783 A.5-C/5-8 EPA #1	34.2	-3.24	2.11	2.69	0.68	-1.35	0.85	1.34	1.08853112
1110	2/23/2006	EPA	S2784 A.5-C/5-8 EPA #2	33.3	-1.31	3.06	2.1	0.95	-0.38	1.24	1.72	1.562081944
1111	2/23/2006	EPA	S2785 A.5-C/5-8 EPA #3	33.4	-2.72	2.3	1.12	0.74	1.22	1.01	2.34	1.252078272
1112	2/23/2006	EPA	S2786 A.5-C/5-8 EPA #4	31.5	2.8	2.52	0.37	0.78	1	1.05	1.37	1.308013761
1113	2/23/2006	EPA	S2787 A.5-C/5-8 EPA #5	34.2	-1.01	2.45	0.44	0.77	1.76	1.06	2.2	1.310152663
Average Total Radium (Th-232+Ra-226) Concentration for :											A.5-C/5-8	1.79 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1114	2/23/2006	EPA	S2788 C-E/6-9 EPA #1	33.4	1.62	2.07	1.39	0.63	-1.01	0.83	0.38	1.042017274
1115	2/23/2006	EPA	S2789 C-E/6-9 EPA #2	35.6	0.37	2.51	1.33	0.77	0.37	1.01	1.7	1.270039369
1116	2/23/2006	EPA	S2790 C-E/6-9 EPA #3	35.3	-0.2	2.33	0.98	0.74	0.6	0.98	1.58	1.228006515
1117	2/23/2006	EPA	S2791 C-E/6-9 EPA #4	33.4	2.55	2.14	1.07	0.66	-0.38	0.85	0.69	1.076150547
1118	2/23/2006	EPA	S2792 C-E/6-9 EPA #5	33.3	0.12	3.05	1.83	0.95	0.17	1.24	2	1.562081944
Average Total Radium (Th-232+Ra-226) Concentration for :											C-E/6-9	1.27 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1119	2/23/2006	EPA	S2793 I-J/2-5 EPA #1	29.5	-3.9	2.07	1.79	0.66	1.31	0.88	3.1	1.1
1120	2/23/2006	EPA	S2794 I-J/2-5 EPA #2	28.7	-2.88	2.22	2.44	0.72	1.59	0.93	4.03	1.176137747
1121	2/23/2006	EPA	S2795 I-J/2-5 EPA #3	27.2	2.81	2.2	2.32	0.67	0.29	0.85	2.61	1.082312339
1122	2/23/2006	EPA	S2796 I-J/2-5 EPA #4	26.5	0	1.44	1.76	0.45	0.99	0.59	2.75	0.742024258
1123	2/23/2006	EPA	S2797 I-J/2-5 EPA #5	29.4	4.16	2	1.69	0.61	1.85	0.79	3.54	0.998098192
Average Total Radium (Th-232+Ra-226) Concentration for : <del>E-5/5-6</del> <sup>I-J/2-5</sup> EPA: 3.21 pCi/g												

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1124	2/23/2006	EPA	S2798 J-K/2-5.5 EPA #1	29.7	0.08	1.93	1.52	0.6	0.75	0.79	2.27	0.992018145
1125	2/23/2006	EPA	S2799 J-K/2-5.5 EPA #2	27.6	-1.09	2.09	1.06	0.66	1.73	0.88	2.79	1.1
1126	2/23/2006	EPA	S2800 J-K/2-5.5 EPA #3	28.5	2.1	2.27	1.28	0.69	1.37	0.94	2.65	1.166061748
1127	2/23/2006	EPA	S2801 J-K/2-5.5 EPA #4	27.2	-1.35	2.2	2.7	0.69	0.83	0.91	3.53	1.142015762
1128	2/23/2006	EPA	S2802 J-K/2-5.5 EPA #5	28.6	-0.24	2.37	1.74	0.74	1.55	1	3.29	1.244025723
Average Total Radium (Th-232+Ra-226) Concentration for : J-K/2-5.5 2.91 pCi/g												

NOTED BY  
EUGENE SABLONOWSKI ON 2/24/06  
PER 2/23/06 EMAIL FROM  
STEVE KORNER.

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: H-10

Date of Verification Survey: 3/8/06

Time of Verification Survey \_\_\_\_\_

am  
sex

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 3/8/06

Print Name Steve Komder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 22 MARCH 2007. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

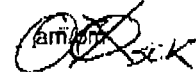
Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 22 MARCH 2007

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: J.5 - 9.5Date of Verification Survey: 3/8/06Time of Verification Survey ~ 10:00AM

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Date: 3/8/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/9/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/9/2006Print Name EUGENE JABLONOWSKIPrint Title HEALTH PHYSICIST / ALTERNATE OSC FOR VERNETA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: K-L/2-6Date of Verification Survey: 3/8/06Time of Verification Survey ~10:00AM and on

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/8/06Print Name Steve KoruderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/4/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/9/2006Print Name EUGENE JABLONOWSKIPrint Title HEALTH PHYSICIST / ALTERNATE O&L FOR VERNEJA SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: L-M/2-EDate of Verification Survey: 3/8/06Time of Verification Survey ~10:00AM

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/8/06Print Name Steve KomderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/9/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/9/2006Print Name EDGENE JABLONOWSKIPrint Title HEALTH PHYSICIST / ALTERNATE DSC FOR VERNETA SIMON

For USEPA Region 5

# Nutran Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Exclusion Zone Confirmatory Samples for March 8, 2006

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1143	3/8/2006	EPA	S2812 K-L/2-6 EPA #1	31.6	0.92	1.9	0.86	0.59	1.72	0.78	2.58	0.97800818
1144	3/8/2006	EPA	S2813 K-L/2-6 EPA #2	32.5	6.41	2.56	0.65	0.75	1.76	1.02	2.41	1.266056871
1145	3/8/2006	EPA	S2814 K-L/2-6 EPA #3	30.3	-0.19	2.24	0.37	0.7	1.9	0.95	2.27	1.180042372
1146	3/8/2006	EPA	S2815 K-L/2-6 EPA #4	32.7	-0.11	2.16	0.52	0.67	2.12	0.9	2.64	1.12200713
1147	3/8/2006	EPA	S2816 K-L/2-6 EPA #5	31.4	1.06	2.65	1.27	0.82	1.69	1.1	2.96	1.372005831

Average Total Radium (Th-232+Ra-226) Concentration for : K-L / 2-6 2.57 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1148	3/8/2006	EPA	S2817 L-M/2-6 EPA #1	35.9	-0.4	2.63	0.88	0.82	1.02	1.11	1.9	1.380036231
1149	3/8/2006	EPA	S2818 L-M/2-6 EPA #2	33.5	-2.35	1.8	1.53	0.58	-0.36	0.75	1.17	0.94810337
1150	3/8/2006	EPA	S2819 L-M/2-6 EPA #3	32.9	-1.51	2.25	1.57	0.71	-1.38	0.92	0.19	1.16211015
1151	3/8/2006	EPA	S2820 L-M/2-6 EPA #4	34.6	3.28	2.69	0.64	0.81	-0.38	1.1	0.26	1.366052708
1152	3/8/2006	EPA	S2821 L-M/2-6 EPA #5	34.7	4.16	2.24	0.49	0.68	1.21	0.89	1.7	1.120044642

Average Total Radium (Th-232+Ra-226) Concentration for : L-M / 2-6 1.04 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1153	3/8/2006	EPA	S2822 H-10 EPA #1	32.2	2.87	1.97	1.44	0.6	1.92	0.8	3.36	1
1154	3/8/2006	EPA	S2823 H-10 EPA #2	33.5	-1.56	2.15	2.7	0.68	0.52	0.88	3.22	1.112115102
1155	3/8/2006	EPA	S2824 H-10 EPA #3	33.3	2.49	2.08	1.35	0.63	1.55	0.85	2.9	1.058017013
1156	3/8/2006	EPA	S2825 H-10 EPA #4	32.5	1.71	2.16	2.04	0.66	1.15	0.88	3.19	1.1
1157	3/8/2006	EPA	S2826 H-10 EPA #5	32.8	-4.09	2.27	2.85	0.73	0.58	0.95	3.43	1.1980818

Average Total Radium (Th-232+Ra-226) Concentration for : H-10 3.22 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1158	3/8/2006	EPA	S2827 J.5-9.5 EPA #1	25.6	2.77	3.19	1.14	0.98	3	1.33	4.14	1.652059321
1159	3/8/2006	EPA	S2828 J.5-9.5 EPA #2	23.7	3.07	2.65	1.49	0.81	2.18	1.09	3.67	1.358013255
1160	3/8/2006	EPA	S2829 J.5-9.5 EPA #3	24.5	-0.58	2.36	1.54	0.75	3.77	1.02	5.31	1.266056871
1161	3/8/2006	EPA	S2830 J.5-9.5 EPA #4	25.7	-0.01	2.75	2.02	0.85	2.68	1.18	4.7	1.454269576
1162	3/8/2006	EPA	S2831 J.5-9.5 EPA #5	25.6	0.86	2.49	2.15	0.78	1.4	1.03	3.55	1.292013932

Average Total Radium (Th-232+Ra-226) Concentration for : J.5-9.5 4.27 pCi/g

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: 6.5H.5/5-8Date of Verification Survey: 3/14/06Time of Verification Survey 12:50 am ☒ pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/15/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/15/06Print Name GENE JABLONOWSKIPrint Title HP/ALTERNATE FOR V. SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: H.5-J/5.5-8.5Date of Verification Survey: 3/14/06Time of Verification Survey 1:10 am pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/15/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/15/06Print Name GENE SABLONOWSKIPrint Title HP/ALTERNATE FOR V.SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: J-K5/6-9Date of Verification Survey: 3/14/06Time of Verification Survey: 1:20 am/pm pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/15/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/15/06Print Name GENE JABLONOWSKIPrint Title HP/ALTERNATE FOR V. SIMON

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: K-L / 11.5-12Date of Verification Survey: 3/14/06Time of Verification Survey 2:20 am ☒ pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 3/15/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 3/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 3/15/06Print Name GENE JABLONOWSKIPrint Title HP/ALTERNATE FOR V. SIMON

For USEPA Region 5

# Nutran! Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

Exclusion Zone Confirmatory Samples for March 14, 2006

Sample	ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1168	3/14/06	EPA	S2835 G-5-H/6-8 EPA #1	24.7	3.63	2.44	1.68	0.74	0.87	0.97	0.86	2.46	1.220040983
1169	3/14/06	EPA	S2838 G-5-H/6-8 EPA #2	24.6	0.87	2.55	1.26	0.78	2.24	1.07	3.5	1.324122351	
1170	3/14/06	EPA	S2837 G-5-H/6-8 EPA #3	26.8	2.7	2.87	1.73	0.88	2.15	1.19	3.88	1.480033783	
1171	3/14/06	EPA	S2838 G-5-H/6-8 EPA #4	24.6	3.01	2.94	0.88	0.8	2.72	1.23	3.6	1.524106286	
1172	3/14/06	EPA	S2839 G-5-H/5-8 EPA #5	23.2	0.89	2.11	0.82	0.66	1.97	0.88	2.79	1.1	
Average Total Radium (Th-232+Ra-226) Concentration for: G-5-H/5-8 3.24 pCi/g													

Sample	ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1173	3/14/06	EPA	S2840 H-5-J/5-8.5 EPA #1	26.2	-1.64	2.96	3.22	0.92	0.26	1.2	3.47	1.512084654	1.614001239
1174	3/14/06	EPA	S2841 H-5-J/5-8.5 EPA #2	26.3	-0.96	2.2	2.16	0.69	1.99	0.9	4.15	1.13406349	1.314001522
1175	3/14/06	EPA	S2842 H-5-J/5-8.5 EPA #3	24.3	-2.16	2.55	2.53	0.79	1.2	1.05	3.73	1.314001522	1.384062022
1176	3/14/06	EPA	S2843 H-5-J/5-8.5 EPA #4	27.4	1.55	2.73	2.55	0.84	1.01	1.1	3.56	1.384062022	1.614001239
1177	3/14/06	EPA	S2844 H-5-J/5-8.5 EPA #5	26.8	3.29	3.23	1.68	0.97	1.32	1.29	3	1.614001239	1.614001239
Average Total Radium (Th-232+Ra-226) Concentration for: H-5-J/5-8.5 3.58 pCi/g													

Sample	ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1178	3/14/06	EPA	S2845 J-K/6-8 EPA #1	33.2	0.77	1.94	1.13	0.6	0.77	0.81	1.9	1.008017867	1.008017867
1179	3/14/06	EPA	S2846 J-K/6-8 EPA #2	33.6	0.06	1.88	3.15	0.68	-1.19	0.73	1.86	0.932362569	0.932362569
1180	3/14/06	EPA	S2847 J-K/6-8 EPA #3	33.6	4.84	3.35	0.69	1.02	0.99	1.35	1.68	1.692010638	1.692010638
1181	3/14/06	EPA	S2848 J-K/6-8 EPA #4	33.8	4.51	1.94	-0.25	0.59	2.51	0.81	2.26	1.0020978	1.0020978
1182	3/14/06	EPA	S2849 J-K/6-8 EPA #5	34.2	2.38	2.02	0.65	0.62	0.86	0.83	1.31	1.036001931	1.036001931
Average Total Radium (Th-232+Ra-226) Concentration for: J-K/5-8.9 1.82 pCi/g													

Sample	ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1183	3/14/06	EPA	S2850 K-L/11.5-12 EPA #1	29.2	2.87	2.47	1.14	0.76	4.31	1.03	5.45	1.280039062	1.280039062
1184	3/14/06	EPA	S2851 K-L/11.5-12 EPA #2	27.4	8.88	2.55	0.74	0.74	3.57	1.02	4.31	1.26015872	1.26015872
1185	3/14/06	EPA	S2851 K-L/11.5-12 EPA #3	27.7	1.13	2.46	2.18	0.76	1.92	1.01	4.1	1.258014308	1.258014308
Average Total Radium (Th-232+Ra-226) Concentration for: K-L/11.5-12 4.62 pCi/g													

Note: Only 3 samples were taken from this exclusion zone. No extra vials onsite and this area was not planned for release - just excavated today. GAH

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: A-4.5/1.5-6.5  
Date of Verification Survey 5/15/06  
Time of Verification Survey 8:30 ampm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]  
Date: 5/15/06

Print Name Steve Komder  
Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/15/06  
Print Name Verneta Simon  
Print Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: A.5 - B.5 / L.5 - 5

Date of Verification Survey: 5/15/06

Time of Verification Survey 900 am

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 5/15/06

Print Name Steve Komder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/15/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/15/06

Print Name Veengeth Simon

Print Title On-Scene Coordinator

For USEPA Region 5

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Exclusion Zone Confirmatory Samples for May 15, 2008

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1196	5/15/08	EPA	S2869 A-A.5/1.5-6.5 EPA#1	35.1	0.7	2.22	1.29	0.68	1.32	0.82	2.61	1.144027972
1197	5/15/08	EPA	S2860 A-A.5/1.5-6.5 EPA#2	33.5	-0.48	1.78	1.81	0.57	0.31	0.73	1.92	0.926174929
1198	5/15/08	EPA	S2861 A-A.5/1.5-6.5 EPA#3	32.8	3.88	3.55	1.27	1.09	0.34	1.37	1.61	1.75071414
1199	5/15/08	EPA	S2862 A-A.5/1.5-6.5 EPA#4	34.3	-3.3	2.57	1.4	0.84	0.8	1.11	2.2	1.392012931
1200	5/15/08	EPA	S2863 A-A.5/1.5-6.5 EPA#5	33.5	-1.43	3.93	2.76	1.24	-1.51	1.6	1.25	2.024252949

Average Total Radium (Th-232+Ra-226) Concentration for : A-A.5/1.5-6.5 1.92 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1201	5/15/08	EPA	S2864 A.5-B.5/1.5-5 EPA#1	33.4	1.12	2.54	1.82	0.79	1.09	1.03	2.91	1.298075499
1202	5/15/08	EPA	S2865 A.5-B.5/1.5-5 EPA#2	35.3	2.03	2.08	1.74	0.63	1.72	0.84	3.46	1.05
1203	5/15/08	EPA	S2866 A.5-B.5/1.5-5 EPA#3	32.3	0.78	2	0.31	0.63	2.16	0.86	2.47	1.06806754
1204	5/15/08	EPA	S2867 A.5-B.5/1.5-5 EPA#4	34.4	-1.07	2.27	1.69	0.72	0.55	0.92	2.24	1.168248549
1205	5/15/08	EPA	S2868 A.5-B.5/1.5-5 EPA#5	35.1	-3.81	2.17	1.77	0.7	2.28	0.94	4.06	1.172006826

Average Total Radium (Th-232+Ra-226) Concentration for : A.5-B.5/1.5-5 3.03 pCi/g

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: I.5-M.5/1.5-2.5Date of Verification Survey: 5/22/06Time of Verification Survey 12:15 am/pm pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 5/23/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/23/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/23/06Print Name EUGENE SABLONOWSKIPrint Title HEALTH PHYSICIST

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: M-M.5/2.5-6.5Date of Verification Survey: 5/22/06Time of Verification Survey 12:30 am/pm pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 5/23/06Print Name Steve KomderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/23/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/23/06Print Name EUGENE JABLONOWSKIPrint Title HEALTH PHYSICIST

For USEPA Region 5

Nutrient Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

Exclusion Zone Confirmatory Samples for May 22, 2008

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1217	5/22/08	EPA	82878 I-5-M/1.5-2.5 EPA #1	32.4	3.23	2.24	0.66	0.68	0.41	0.8	0.89	1.118084514
1218	6/22/08	EPA	82878 I-5-M/1.5-2.5 EPA #2	32.6	0.1	2.32	1.26	0.73	-0.19	0.86	1.07	1.208028634
1219	6/22/08	EPA	82880 I-5-M/1.5-2.5 EPA #3	32.3	1.78	2.33	0.44	0.71	0.78	0.88	1.22	1.188001686
1220	6/22/08	EPA	82881 I-5-M/1.5-2.5 EPA #4	31.3	-0.39	1.28	1.31	0.4	-0.21	0.63	1.1	0.684003012
1221	6/22/08	EPA	82882 I-5-M/1.5-2.5 EPA #5	31.6	0.86	2.2	0.51	0.69	0.36	0.92	0.87	1.15
Average Total Radium (Th-232+Ra-226) Concentration for : 1.5-M/5/1.5-2.5												
1.05 pCi/g												

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1222	6/22/08	EPA	82883 M-M/6/2.5-8.5 EPA #1	28.3	3.88	2.79	0.7	0.84	1	1.14	1.7	1.418060847
1223	6/22/08	EPA	82884 M-M/6/2.5-8.5 EPA #2	28.6	-1.63	2.34	1.01	0.73	1.89	0.98	3.8	1.222006647
1224	6/22/08	EPA	82885 M-M/5/2.5-8.5 EPA #3	28.8	2.88	3.88	0.76	1.22	3.67	1.7	4.36	2.082462884
1225	6/22/08	EPA	82886 M-M/5/2.5-8.5 EPA #4	28.3	6.83	1.8	1.86	0.66	1.11	0.74	2.78	0.828008621
1226	6/22/08	EPA	82887 M-M/6/2.5-8.5 EPA #5	28.5	0.46	2.46	1.21	0.76	1.87	1.03	3.18	1.274127152
Average Total Radium (Th-232+Ra-226) Concentration for : M-M/5/2.5-8.5												
3.16 pCi/g												

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification E-6/15-4.5Date of Verification Survey: 5/25/06Time of Verification Survey 2:00 am ☒ pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: Steve KomderDate: 5/25/06Print Name Steve KomderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/26/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/26/06Print Name Veereta SimonPrint Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: 6-11.5/11.5-4Date of Verification Survey: 5/15/06Time of Verification Survey: 3:30 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 5/15/06Print Name Steve KornderPrint Title Senior Project Geochemist

STS Consultants, Ltd

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/24/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/26/06Print Name VGeneta SimonPrint Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: M.5 - A1/S-4Date of Verification Survey: 5/25/06Time of Verification Survey 2:15 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 5/25/06Print Name Steve KomderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/26/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation

Date 5/26/06Print Name Veeneta SimonPrint Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: 11.3-17/6.6.5Date of Verification Survey: 5/25/06Time of Verification Survey: 2:30 apm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 5/25/06Print Name: Steve KomderPrint Title: Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/26/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date: 5/26/06Print Name: Verneta SimonPrint Title: On-Scene Coordinator

For USEPA Region 5

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Exclusion Zone Confirmatory Samples for May 25, 2006**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1229	5/25/06	EPA	S2888 M.5-N/3-4 EPA#1	34.4	0.38	2.94	1.83	0.9	-1.25	1.19	0.58	1.492012064
1230	5/25/06	EPA	S2889 M.5-N/3-4 EPA#2	36.6	2.71	1.97	1.16	0.6	-0.4	0.79	0.76	0.992018145
1231	5/25/06	EPA	S2890 M.5-N/3-4 EPA#3	35.2	6.83	3.03	0.73	0.87	1.03	1.18	1.76	1.468049112
1232	5/25/06	EPA	S2891 M.5-N/3-4 EPA#4	34.5	4.45	1.91	0.41	0.58	0.28	0.76	0.89	0.956033472
1233	5/25/06	EPA	S2892 M.5-N/3-4 EPA#5	36.6	1.29	2.27	1.4	0.7	-0.07	0.91	1.33	1.148085363

**Average Total Radium (Th-232+Ra-226) Concentration for : M.5-N/3-4 1.02 pCi/g**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1234	5/25/06	EPA	S2893 M.5-N/6-6.5 EPA#1	34.5	1.84	2.52	1.22	0.77	1.15	1.01	2.37	1.270039369
1235	5/25/06	EPA	S2894 M.5-N/6-6.5 EPA#2	34.1	-1.82	2.81	1.76	0.89	-0.2	1.16	1.56	1.462087549
1236	5/25/06	EPA	S2895 M.5-N/6-6.5 EPA#3	33.3	-0.05	2.26	0.57	0.72	0.71	0.93	1.28	1.176137747
1237	5/25/06	EPA	S2896 M.5-N/6-6.5 EPA#4	35.5	1.94	3.62	1.48	1.16	-0.28	1.48	1.2	1.680425484
1238	5/25/06	EPA	S2897 M.5-N/6-6.5 EPA#5	35.2	1.85	2.68	1.85	0.81	-0.68	1.05	1.17	1.326122166

**Average Total Radium (Th-232+Ra-226) Concentration for : M.5-N/6-6.5 1.52 pCi/g**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1239	5/25/06	EPA	S2898 E-G/1.5-4.5 EPA#1	30.2	6.23	2.59	1.04	0.77	3.09	1.06	4.13	1.310152663
1240	5/25/06	EPA	S2899 E-G/1.5-4.5 EPA#2	28.5	3	2.31	1.3	0.71	2.43	0.98	3.73	1.1940268
1241	5/25/06	EPA	S2900 E-G/1.5-4.5 EPA#3	29.4	2.18	3.6	2.54	1.09	0.09	1.41	2.63	1.782189664
1242	5/25/06	EPA	S2901 E-G/1.5-4.5 EPA#4	28.5	1.8	3.15	1.38	0.96	1.8	1.33	3.18	1.640274367
1243	5/25/06	EPA	S2902 E-G/1.5-4.5 EPA#5	28.3	-0.07	2.46	0.4	0.77	3.36	1.06	3.76	1.310152663

**Average Total Radium (Th-232+Ra-226) Concentration for : E-G/1.5-4.5 3.49 pCi/g**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1244	5/25/06	EPA	S2903 G-H.5/1.5-4 EPA#1	27.5	2.19	2.51	0.85	0.76	4.58	1.07	5.43	1.312440475
1245	5/25/06	EPA	S2904 G-H.5/1.5-4 EPA#2	25.6	0.43	2.62	1.78	0.81	2.71	1.09	4.49	1.358013255
1246	5/25/06	EPA	S2905 G-H.5/1.5-4 EPA#3	27.6	0.03	2.57	3.26	0.79	0.13	1.01	3.39	1.282263623
1247	5/25/06	EPA	S2906 G-H.5/1.5-4 EPA#4	28.3	-0.72	2.49	1.8	0.78	2.22	1.04	4.02	1.3
1248	5/25/06	EPA	S2907 G-H.5/1.5-4 EPA#5	26.8	-4.5	2.98	3.53	0.95	0.09	1.27	3.62	1.686001261

**Average Total Radium (Th-232+Ra-226) Concentration for : G-H.5/1.5-4 4.19 pCi/g**

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: A-C / 1-1.5

Date of Verification Survey: 5/31/06

Time of Verification Survey 10:45 am am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 5/31/06

Print Name Steve Komder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/31/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/31/06

Print Name EUGENE JABLONOWSKI

Print Title HEALTH PHYSICIST

For USEPA Region 5

# Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)

## Exclusion Zone Confirmatory Samples for May 31, 2006

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1266	5/31/08	EPA	S2920 A-C/1-1.5 EPA #1	38.4	3.51	3.02	1.81	0.9	-1.07	1.16	0.74	1.460308187
1268	5/31/08	EPA	S2921 A-C/1-1.5 EPA #2	34.2	3.44	2.12	0.9	0.64	-0.6	0.84	0.3	1.056030303
1267	5/31/08	EPA	S2922 A-C/1-1.5 EPA #3	34.6	1.33	2.65	-0.71	0.85	1.78	1.16	1.07	1.43808901
1268	5/31/08	EPA	S2923 A-C/1-1.5 EPA #4	34.5	2.68	2.91	-0.16	0.92	1.18	1.21	1.01	1.520032894
1269	5/31/08	EPA	S2924 A-C/1-1.5 EPA #5	35.3	5.52	3.34	0.27	1	-0.34	1.27	-0.07	1.61644672

Average Total Radium (Th-232+Ra-226) Concentration for :

A-C/1-1.5

0.61

pCi/g

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification: C-E/1-1.5  
Date of Verification Survey: 5/30/06  
Time of Verification Survey 3:00 am pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 5/31/06

Print Name Steve Kornder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 5/31/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 5/31/2006

Print Name EUGENE A. JABLONOWSKI

Print Title HEALTH PHYSICIST

For USEPA Region 5

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Exclusion Zone Confirmatory Samples for May 30, 2006**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1258	5/30/06	EPA	S2915 C-E/1-1.5 EPA #1	34.2	1.18	1.95	-0.09	0.6	0	0.82	-0.09	1.018070864
1259	5/30/06	EPA	S2916 C-E/1-1.5 EPA #2	34.6	1.69	1.83	0.22	0.56	-0.65	0.74	-0.43	0.928008621
1260	5/30/06	EPA	S2917 C-E/1-1.5 EPA #3	35.4	-1.92	2.58	0.28	0.62	0.11	1.11	0.39	1.380036231
1261	5/30/06	EPA	S2918 C-E/1-1.5 EPA #4	34.6	0.25	2.47	-0.01	0.78	-0.16	1.05	-0.17	1.308013761
1262	5/30/06	EPA	S2919 C-E/1-1.5 EPA #5	34.3	0.34	1.98	0.22	0.61	-0.85	0.84	-0.63	1.038123307
Average Total Radium (Th-232+Ra-226) Concentration for : C-E/1-1.5 -0.19 pCi/g												

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification A-5-B/10-11  
Date of Verification Survey: 8/7/06  
Time of Verification Survey 3:00 am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]

Date: 8/7/06

Print Name Steve Komder

Print Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 8/8/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 8/8/06

Print Name Verneta Simon

Print Title On-Scene Coordinator

For USEPA Region 5

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification.

E-E.5/18-19.5

Date of Verification Survey.

8/1/06

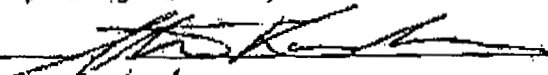
Time of Verification Survey

3:00am/pm

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed:



Date:

8/2/06

Print Name

Steve Kornder

Print Title

Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 8/8/06. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date

8/8/06

Print Name

Verneta Simon

Print Title

On-Scene Coordinator

For USEPA Region 5

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

## **Exclusion Zone Confirmatory Samples for August 7, 2006**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1272	8/7/06	EPA	S2925 A.5-B/10-11 EPA #1	28.6	3.84	2.08	0.86	0.62	2.76	0.85	3.62	1.052093152
1273	8/7/06	EPA	S2926 A.5-B/10-11 EPA #2	28.4	-0.53	3.09	1.44	0.96	1.51	1.29	2.95	1.608011194
1274	8/7/06	EPA	S2927 A.5-B/10-11 EPA #3	28.6	3.52	3.51	1.59	1.08	1.52	1.45	3.11	1.808009956
1275	8/7/06	EPA	S2928 A.5-B/10-11 EPA #4	27.5	-0.67	2.75	3.28	0.85	-0.32	1.09	2.96	1.382244551
1276	8/7/06	EPA	S2929 A.5-B/10-11 EPA #5	27.7	-6.64	2.99	2.83	0.99	0.65	1.33	3.48	1.658010856

Average Total Radium (Th-232+Ra-226) Concentration for : A.5-B/10-11 3.22 pCi/g

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1277	8/7/06	EPA	S2930 E-E.5/18-19.5 EPA #1	27.9	-1.65	2.09	1.34	0.66	-0.26	0.87	1.08	1.092016483
1278	8/7/06	EPA	S2931 E-E.5/18-19.5 EPA #2	30.6	-1.88	2.3	1.5	0.73	0.76	0.97	2.26	1.214001647
1279	8/7/06	EPA	S2932 E-E.5/18-19.5 EPA #3	29.3	4.86	2.67	0.67	0.78	0.23	1	0.9	1.268227109
1280	8/7/06	EPA	S2933 E-E.5/18-19.5 EPA #4	27.3	3.02	3.14	1.79	0.93	-0.55	1.23	1.24	1.542011673
1281	8/7/06	EPA	S2934 E-E.5/18-19.5 EPA #5	28.6	-0.59	2.03	1.33	0.64	-0.06	0.86	1.27	1.072007463

Average Total Radium (Th-232+Ra-226) Concentration for : E-E.5/18-19.5 1.35 pCi/g

FORM 223-1  
NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEYArea Identification: F.5 - G/14-15Date of Verification Survey: 8/10/06Time of Verification Survey 11:00 (am/pm)

The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.

Documents pertaining to this survey are attached for review and approval by the USEPA.

Signed: [Signature]Date: 8/10/06Print Name Steve KomderPrint Title Senior Project Geochemist

STS Consultants, Ltd.

The attached Verification Survey documents were reviewed by USEPA, Region 5 on 8/10/2006. The results of this survey indicate that the verification criteria as contained in the Administrative Settlement Agreement and Order on Consent.

Authorization is hereby granted to commence backfill and restoration work at this excavation.

Date 8/10/2006Print Name Eugene JablonowskiPrint Title Health Physicist

For USEPA Region 5

# **Nutranl Gamma Spec Report- Parcel K & Parcel 21 (Kraft Bldg.)**

**Exclusion Zone Confirmatory Samples for August 10, 2006 11:45am**

Sample ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-226 Uncertainty	Total Radium Activity	Total Radium Uncertainty
1288	8/10/06	EPA	S2935 F.5-G/14-15 EPA #1	31.4	3.68	2.96	1.92	0.88	-0.87	1.14	1.05	1.440138882
1289	8/10/06	EPA	S2936 F.5-G/14-15 EPA #2	30.6	-4.92	2.73	2.78	0.87	-0.4	1.16	2.38	1.45
1290	8/10/06	EPA	S2937 F.5-G/14-15 EPA #3	27.5	3.6	2.25	0.36	0.69	-0.01	0.88	0.35	1.118257573
1291	8/10/06	EPA	S2938 F.5-G/14-15 EPA #4	31.3	1.91	3.63	1.11	1.11	0.65	1.51	1.76	1.874088444
1292	8/10/06	EPA	S2939 F.5-G/14-15 EPA #5	31.2	-0.28	1.68	1.1	0.53	0.93	0.7	2.03	0.878009112
Average Total Radium (Th-232+Ra-226) Concentration for : F.5-G/14-15 1.51 pCi/g												

## APPENDIX D

### USEPA Contract Laboratory Analytical Data



**USEPA Contract Laboratory**  
**Analytical Data is to be provided by the USEPA**

## APPENDIX E

### Shipping Manifests



## APPENDIX F

### Air Monitoring Results

- a. Perimeter Air Monitoring
- b. Personal Air Monitoring



a. **Perimeter Air Monitoring**



# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #1 1/9/06 - 1/13/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/9/2006	376	1.38E-15	5.19E-13	
1/10/2006	349	0.00E+00	0.00E+00	
1/11/2006	343	8.04E-16	2.76E-13	
1/12/2006	293	0.00E+00	0.00E+00	
1/13/2006	0	0.00E+00	0.00E+00	rained out - no work
1361		2.18E-15	7.95E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 5.84E-16 uCi/ml

Percentage of Release Limit of = 14.60%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/9/2006	377	0.00E+00	0.00E+00	
1/10/2006	356	0.00E+00	0.00E+00	
1/11/2006	346	0.00E+00	0.00E+00	
1/12/2006	300	9.57E-16	2.87E-13	
1/13/2006	0	0.00E+00	0.00E+00	rained out - no work
1379		9.57E-16	2.87E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 2.08E-16 uCi/ml

Percentage of Release Limit of = 5.20%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/9/2006	375	0.00E+00	0.00E+00	
1/10/2006	348	0.00E+00	0.00E+00	
1/11/2006	345	0.00E+00	0.00E+00	
1/12/2006	305	0.00E+00	0.00E+00	
1/13/2006	0	0.00E+00	0.00E+00	rained out - no work
1373		0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/9/2006	377	7.95E-16	3.00E-13	
1/10/2006	350	7.03E-16	2.46E-13	
1/11/2006	347	0.00E+00	0.00E+00	
1/12/2006	300	0.00E+00	0.00E+00	
1/13/2006	0	0.00E+00	0.00E+00	rained out - no work
1374		1.50E-15	5.46E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 3.97E-16 uCi/ml

Percentage of Release Limit of = 9.93%

**Chicago, IL**

**Monday January 9, 2006 - Friday January 13, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N001	1/9/2006	9:05am	3:21pm	376	53	1.97E+07	1/10/2006	31	11	0.66667	1.38E-14	1/13/2006	14	12	0.067	1.38E-15	34.59%
S001	1/9/2006	9:07am	3:24pm	377	45	1.68E+07	1/10/2006	37	11	0.86667	2.11E-14	1/13/2006	10	12	0	0.00E+00	0.00%
E001	1/9/2006	9:05am	3:20pm	375	46	1.71E+07	1/10/2006	25	11	0.46667	1.12E-14	1/13/2006	12	12	0	0.00E+00	0.00%
W001	1/9/2006	9:08am	3:25pm	377	46	1.72E+07	1/10/2006	46	11	1.16667	2.78E-14	1/13/2006	13	12	0.033	7.95E-16	19.87%
N002	1/10/2006	7:56am	1:45pm	349	50	1.73E+07	1/11/2006	34	10	0.8	1.90E-14	1/14/2006	10	13	0	0.00E+00	0.00%
S002	1/10/2006	7:50am	1:46pm	356	51	1.80E+07	1/11/2006	27	10	0.56667	1.29E-14	1/14/2006	12	13	0	0.00E+00	0.00%
E002	1/10/2006	7:55am	1:43pm	348	54	1.86E+07	1/11/2006	39	10	0.96667	2.13E-14	1/14/2006	13	13	0	0.00E+00	0.00%
W002	1/10/2006	7:57am	1:47pm	350	56	1.94E+07	1/11/2006	37	10	0.9	1.90E-14	1/14/2006	14	13	0.033	7.03E-16	17.58%
N003	1/11/2006	7:56am	1:39pm	343	50	1.70E+07	1/12/2006	122	11	3.7	8.92E-14	1/15/2006	12	11	0.033	8.04E-16	20.10%
S003	1/11/2006	7:57am	1:43pm	346	48	1.65E+07	1/12/2006	107	11	3.2	7.97E-14	1/15/2006	10	11	0	0.00E+00	0.00%
E003	1/11/2006	7:55am	1:40pm	345	53	1.81E+07	1/12/2006	134	11	4.1	9.27E-14	1/15/2006	11	11	0	0.00E+00	0.00%
W003	1/11/2006	7:57am	1:40pm	347	53	1.82E+07	1/12/2006	125	11	3.8	8.55E-14	1/15/2006	11	11	0	0.00E+00	0.00%
N004	1/12/2006	10:02am	2:55pm	293	46	1.34E+07	1/13/2006	52	12	1.33333	4.09E-14	1/17/2006	12	13	0	0.00E+00	0.00%
S004	1/12/2006	10:00am	3:00pm	300	48	1.43E+07	1/13/2006	59	12	1.56667	4.50E-14	1/17/2006	14	13	0.033	9.57E-16	23.93%
E004	1/12/2006	9:50am	2:55pm	305	52	1.57E+07	1/13/2006	56	12	1.46667	3.82E-14	1/17/2006	12	13	0	0.00E+00	0.00%
W004	1/12/2006	10:00am	3:00pm	300	51	1.52E+07	1/13/2006	71	12	1.96667	5.32E-14	1/17/2006	11	13	0	0.00E+00	0.00%
No Work on Friday 1/13/06 - Rained Out																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #2 1/16/06 - 1/20/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/16/2006	315	0.00E+00	0.00E+00	PAMS only due to rain
1/17/2006	0	0.00E+00	0.00E+00	
1/18/2006	288	0.00E+00	0.00E+00	No Handling of Contaminated Soil
1/19/2006	0	0.00E+00	0.00E+00	
1/20/2006	0	0.00E+00	0.00E+00	
603		0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/16/2006	317	8.36E-16	2.65E-13	PAMS only due to rain
1/17/2006	0	0.00E+00	0.00E+00	
1/18/2006	272	0.00E+00	0.00E+00	No Handling of Contaminated Soil
1/19/2006	0	0.00E+00	0.00E+00	
1/20/2006	0	0.00E+00	0.00E+00	
589		8.36E-16	2.65E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 4.50E-16 uCi/ml

Percentage of Release Limit of = 11.25%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/16/2006	318	1.71E-15	5.44E-13	PAMS only due to rain
1/17/2006	0	0.00E+00	0.00E+00	
1/18/2006	281	9.09E-16	2.55E-13	No Handling of Contaminated Soil
1/19/2006	0	0.00E+00	0.00E+00	
1/20/2006	0	0.00E+00	0.00E+00	
599		2.62E-15	7.99E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 1.33E-15 uCi/ml

Percentage of Release Limit of = 33.36%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/16/2006	317	0.00E+00	0.00E+00	PAMS only due to rain
1/17/2006	0	0.00E+00	0.00E+00	
1/18/2006	275	0.00E+00	0.00E+00	No Handling of Contaminated Soil
1/19/2006	0	0.00E+00	0.00E+00	
1/20/2006	0	0.00E+00	0.00E+00	
592		0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%

*Chicago, IL*

**Monday January 16, 2006 - Friday January 20, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N005	1/16/2006	9:25am	2:40pm	315	52	1.62E+07	1/17/2006	62	13	1.63333	4.12E-14	1/20/2006	9	11	0	0.00E+00	0.00%
S005	1/16/2006	9:20am	2:37pm	317	52	1.63E+07	1/17/2006	60	13	1.56667	3.93E-14	1/20/2006	12	11	0.033	8.36E-16	20.91%
E005	1/16/2006	9:21am	2:39pm	318	51	1.61E+07	1/17/2006	81	13	2.26667	5.78E-14	1/20/2006	13	11	0.067	1.70E-15	42.50%
W005	1/16/2006	9:21am	2:38pm	317	51	1.60E+07	1/17/2006	53	13	1.33333	3.41E-14	1/20/2006	10	11	0	0.00E+00	0.00%
No Area Air Monitoring Performed on 1/17/06 Due to Rain - PAMS Only																	
N006	1/18/2006	7:58am	12:46pm	288	44	1.26E+07	1/19/2006	41	10	1.03333	3.37E-14	1/23/2006	8	12	0	0.00E+00	0.00%
S006	1/18/2006	8:10am	12:42pm	272	50	1.35E+07	1/19/2006	45	10	1.16667	3.55E-14	1/23/2006	12	12	0	0.00E+00	0.00%
E006	1/18/2006	7:59am	12:40pm	281	54	1.50E+07	1/19/2006	32	10	0.73333	2.00E-14	1/23/2006	13	12	0.033	9.09E-16	22.71%
W006	1/18/2006	8:10am	12:45pm	275	51	1.39E+07	1/19/2006	34	10	0.8	2.36E-14	1/23/2006	10	12	0	0.00E+00	0.00%
No Area Air Air Monitoring Performed on 1/19/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	
No Area Air Air Monitoring Performed on 1/20/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #3 1/23/06 - 1/27/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/23/2006	360	8.15E-16	2.93E-13	
1/24/2006	0	0.00E+00	0.00E+00	No Sample Today - Pump Broken
1/25/2006	351	0.00E+00	0.00E+00	
1/26/2006	0	0.00E+00	0.00E+00	No Work Today
1/27/2006	0	0.00E+00	0.00E+00	No Work Today
711		8.15E-16	2.93E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

4.13E-16 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

10.32%

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/23/2006	359	0.00E+00	0.00E+00	
1/24/2006	421	6.42E-16	2.70E-13	
1/25/2006	348	0.00E+00	0.00E+00	
1/26/2006	0	0.00E+00	0.00E+00	No Work Today
1/27/2006	0	0.00E+00	0.00E+00	No Work Today
1128		6.42E-16	2.70E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

2.40E-16 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

5.99%

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/23/2006	360	1.47E-15	5.29E-13	
1/24/2006	420	0.00E+00	0.00E+00	
1/25/2006	357	0.00E+00	0.00E+00	
1/26/2006	0	0.00E+00	0.00E+00	No Work Today
1/27/2006	0	0.00E+00	0.00E+00	No Work Today
1137		1.47E-15	5.29E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

4.65E-16 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

11.64%

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/23/2006	360	0.00E+00	0.00E+00	
1/24/2006	421	1.46E-15	6.15E-13	
1/25/2006	355	0.00E+00	0.00E+00	
1/26/2006	0	0.00E+00	0.00E+00	No Work Today
1/27/2006	0	0.00E+00	0.00E+00	No Work Today
1136		1.46E-15	6.15E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

5.41E-16 uCi/ml

Percentage of Release Limit of =

13.53%

**Chicago, IL**

**Monday January 23, 2006 - Friday January 27, 2006**

[illegible]

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #4 1/30/06 - 2/3/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/30/2006	0	0.00E+00	0.00E+00	No Work Today
1/31/2006	424	1.25E-15	5.30E-13	
2/1/2006	350	0.00E+00	0.00E+00	
2/2/2006	0	0.00E+00	0.00E+00	No Work Today
2/3/2006	0	0.00E+00	0.00E+00	No Samples Due to Rain
774		1.25E-15	5.30E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 6.85E-16 uCi/ml

Percentage of Release Limit of = 17.12%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/30/2006	0	0.00E+00	0.00E+00	No Work Today
1/31/2006	418	0.00E+00	0.00E+00	
2/1/2006	349	0.00E+00	0.00E+00	
2/2/2006	0	0.00E+00	0.00E+00	No Work Today
2/3/2006	0	0.00E+00	0.00E+00	No Samples Due to Rain
767		0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/30/2006	0	0.00E+00	0.00E+00	No Work Today
1/31/2006	420	0.00E+00	0.00E+00	
2/1/2006	347	8.28E-16	2.87E-13	
2/2/2006	0	0.00E+00	0.00E+00	No Work Today
2/3/2006	0	0.00E+00	0.00E+00	No Samples Due to Rain
767		8.28E-16	2.87E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 3.75E-16 uCi/ml

Percentage of Release Limit of = 9.36%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
1/30/2006	0	0.00E+00	0.00E+00	No Work Today
1/31/2006	418	0.00E+00	0.00E+00	
2/1/2006	349	7.75E-16	2.70E-13	
2/2/2006	0	0.00E+00	0.00E+00	No Work Today
2/3/2006	0	0.00E+00	0.00E+00	No Samples Due to Rain
767		7.75E-16	2.70E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 3.53E-16 uCi/ml

Percentage of Release Limit of = 8.82%

*Chicago, IL*

**Monday January 30, 2006 - Friday February 3, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Work on Monday January 30, 2006																	
N010	1/31/2006 7:58am	3:02pm		424	52	2.19E+07	2/1/2006	71	8	2.1	3.94E-14	2/6/2005	13	11	0.067	1.25E-15	31.26%
S010	1/31/2006 8:06am	3:04pm		418	50	2.07E+07	2/1/2006	56	8	1.6	3.17E-14	2/6/2005	11	11	0	0.00E+00	0.00%
E010	1/31/2006 8:00am	3:00pm		420	50	2.08E+07	2/1/2006	43	8	1.16667	2.30E-14	2/6/2005	8	11	0	0.00E+00	0.00%
W010	1/31/2006 8:07am	3:05pm		418	49	2.03E+07	2/1/2006	50	8	1.4	2.83E-14	2/6/2005	11	11	0	0.00E+00	0.00%
N011	2/1/2006 7:54am	1:44pm		350	54	1.87E+07	2/2/2006	158	10	4.93333	1.08E-13	2/6/2005	10	11	0	0.00E+00	0.00%
S011	2/1/2006 7:57am	1:46pm		349	49	1.69E+07	2/2/2006	125	10	3.83333	9.27E-14	2/6/2005	10	11	0	0.00E+00	0.00%
E011	2/1/2006 7:55am	1:42pm		347	48	1.65E+07	2/2/2006	144	10	4.46667	1.11E-13	2/6/2005	12	11	0.033	8.28E-16	20.69%
W011	2/1/2006 7:58am	1:47pm		349	51	1.76E+07	2/2/2006	89	10	2.63333	6.12E-14	2/6/2005	12	11	0.033	7.75E-16	19.36%
No Work on Thursday February 2, 2006																	
Area Monitors not used on February 3, 2006 due to rain. PAM's only.																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #5 2/6/06 - 2/10/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/6/2006	334	0.00E+00	0.00E+00	
2/7/2006	0	0.00E+00	0.00E+00	No Work Today
2/8/2006	0	0.00E+00	0.00E+00	No Work Today
2/9/2006	0	0.00E+00	0.00E+00	No Work Today
2/10/2006	0	0.00E+00	0.00E+00	No Work Today
	334	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/6/2006	345	8.50E-16	2.93E-13	
2/7/2006	0	0.00E+00	0.00E+00	No Work Today
2/8/2006	0	0.00E+00	0.00E+00	No Work Today
2/9/2006	0	0.00E+00	0.00E+00	No Work Today
2/10/2006	0	0.00E+00	0.00E+00	No Work Today
	345	8.50E-16	2.93E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 8.50E-16 uCi/ml

Percentage of Release Limit of = 21.25%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/6/2006	334	0.00E+00	0.00E+00	
2/7/2006	0	0.00E+00	0.00E+00	No Work Today
2/8/2006	0	0.00E+00	0.00E+00	No Work Today
2/9/2006	0	0.00E+00	0.00E+00	No Work Today
2/10/2006	0	0.00E+00	0.00E+00	No Work Today
	334	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/6/2006	344	0.00E+00	0.00E+00	
2/7/2006	0	0.00E+00	0.00E+00	No Work Today
2/8/2006	0	0.00E+00	0.00E+00	No Work Today
2/9/2006	0	0.00E+00	0.00E+00	No Work Today
2/10/2006	0	0.00E+00	0.00E+00	No Work Today
	344	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

Report No. 5

Monday February 6, 2006 - Friday February 10, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N012	2/6/2006	7:57am	1:31pm	334	50	1.66E+07	No Day After Analysis performed since we were not onsite the remainder of the week.					2/13/2006	8	9	0	0.00E+00	0.00%
S012	2/6/2006	7:52am	1:37pm	345	47	1.61E+07						2/13/2006	10	9	0.033	8.50E-16	21.25%
E012	2/6/2006	7:56am	1:30pm	334	50	1.66E+07	Analysis performed on first day back, 2/13/06 GAH					2/13/2006	7	9	0	0.00E+00	0.00%
W012	2/6/2006	7:54am	1:38pm	344	46	1.57E+07						2/13/2006	9	9	0	0.00E+00	0.00%
No Work on Tuesday February 7, 2006																	
No Work on Wednesday February 8, 2006																	
No Work on Thursday February 9, 2006																	
No Work on Friday February 10, 2006																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #6 2/13/06 - 2/17/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/13/2006	436	0.00E+00	0.00E+00	No Work Today
2/14/2006	407	7.21E-16	2.93E-13	
2/15/2006	372	0.00E+00	0.00E+00	
2/16/2006	0	0.00E+00	0.00E+00	
2/17/2006	401	0.00E+00	0.00E+00	
1616		7.21E-16	2.93E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

1.82E-16 uCi/ml

Percentage of Release Limit of =

4.54%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/13/2006	255	2.35E-15	5.99E-13	No Work Today
2/14/2006	407	0.00E+00	0.00E+00	
2/15/2006	377	0.00E+00	0.00E+00	
2/16/2006	0	0.00E+00	0.00E+00	
2/17/2006	407	7.88E-16	3.21E-13	
1446		3.14E-15	9.20E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

6.36E-16 uCi/ml

Percentage of Release Limit of =

15.91%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/13/2006	425	0.00E+00	0.00E+00	No Work Today
2/14/2006	410	0.00E+00	0.00E+00	
2/15/2006	377	1.43E-15	5.39E-13	
2/16/2006	0	0.00E+00	0.00E+00	
2/17/2006	401	0.00E+00	0.00E+00	
1613		1.43E-15	5.39E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

3.34E-16 uCi/ml

Percentage of Release Limit of =

8.36%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/13/2006	252	1.27E-15	3.20E-13	No Work Today
2/14/2006	404	0.00E+00	0.00E+00	
2/15/2006	377	0.00E+00	0.00E+00	
2/16/2006	0	0.00E+00	0.00E+00	
2/17/2006	402	1.88E-15	7.56E-13	
1435		3.15E-15	1.08E-12	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

7.50E-16 uCi/ml

Percentage of Release Limit of =

18.74%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

Report No. 6

Monday February 13, 2006 - Friday February 17, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N013	2/13/2006	8:09am	3:25pm	436	51	2.20E+07	2/14/2006	161	9	5.06667	9.42E-14	2/17/2006	8	8	0	0.00E+00	0.00%
S013	2/13/2006	9:00am	1:15pm	255	46	1.16E+07	2/14/2006	88	9	2.63333	9.28E-14	2/17/2006	10	8	0.067	2.35E-15	58.76%
E013	2/13/2006	8:07am	3:12pm	425	49	2.06E+07	2/14/2006	96	9	2.9	5.76E-14	2/17/2006	8	8	0	0.00E+00	0.00%
W013	2/13/2006	9:03am	1:15pm	252	43	1.07E+07	2/14/2006	84	9	2.5	9.54E-14	2/17/2006	9	8	0.033	1.27E-15	31.81%
N014	2/14/2006	8:01am	2:48pm	407	47	1.90E+07	2/15/2006	68	10	1.93333	4.18E-14	2/19/2006	10	9	0.033	7.21E-16	18.02%
S014	2/14/2006	7:55am	2:42pm	407	40	1.61E+07	2/15/2006	134	10	4.13333	1.05E-13	2/19/2006	8	9	0	0.00E+00	0.00%
E014	2/14/2006	8:00am	2:50pm	410	38	1.54E+07	2/15/2006	59	10	1.63333	4.34E-14	2/19/2006	6	9	0	0.00E+00	0.00%
W014	2/14/2006	7:56am	2:40pm	404	46	1.84E+07	2/15/2006	188	10	5.93333	1.32E-13	2/19/2006	9	9	0	0.00E+00	0.00%
N015	2/15/2006	8:03am	2:15pm	372	47	1.73E+07	2/16/2006	41	8	1.1	2.60E-14	2/19/2006	7	9	0	0.00E+00	0.00%
S015	2/15/2006	8:07am	2:24pm	377	46	1.72E+07	2/16/2006	56	8	1.6	3.82E-14	2/19/2006	9	9	0	0.00E+00	0.00%
E015	2/15/2006	8:00am	2:17pm	377	51	1.91E+07	2/16/2006	44	8	1.2	2.58E-14	2/19/2006	11	9	0.067	1.43E-15	35.85%
W015	2/15/2006	8:06am	2:23pm	377	41	1.53E+07	2/16/2006	38	8	1	2.68E-14	2/19/2006	8	9	0	0.00E+00	0.00%
No Work on Thursday February 16, 2006																	
N016	2/17/2006	8:17am	2:58pm	401	51	2.03E+07	2/18/2006	38	8	1	2.02E-14	2/21/2006	8	10	0	0.00E+00	0.00%
S016	2/17/2006	8:16am	3:03pm	407	43	1.73E+07	2/18/2006	47	8	1.3	3.07E-14	2/21/2006	11	10	0.033	7.88E-16	19.69%
E016	2/17/2006	8:15am	2:56pm	401	55	2.19E+07	2/18/2006	55	8	1.56667	2.94E-14	2/21/2006	7	10	0	0.00E+00	0.00%
W016	2/17/2006	8:18am	3:00pm	402	37	1.47E+07	2/18/2006	71	8	2.1	5.84E-14	2/21/2006	12	10	0.067	1.85E-15	46.34%

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #7 2/20/06 - 2/24/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/20/2006	405	0.00E+00	0.00E+00	No Work Today
2/21/2006	350	8.21E-16	2.87E-13	
2/22/2006	372	0.00E+00	0.00E+00	
2/23/2006	0	0.00E+00	0.00E+00	
2/24/2006	399	0.00E+00	0.00E+00	
	1526	8.21E-16	2.87E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

1.88E-16 uCi/ml

Percentage of Release Limit of =

4.71%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/20/2006	390	7.33E-16	2.86E-13	No Work Today
2/21/2006	340	0.00E+00	0.00E+00	
2/22/2006	371	0.00E+00	0.00E+00	
2/23/2006	0	0.00E+00	0.00E+00	
2/24/2006	398	0.00E+00	0.00E+00	
	1499	7.33E-16	2.86E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

1.91E-16 uCi/ml

Percentage of Release Limit of =

4.77%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/20/2006	406	7.07E-16	2.87E-13	No Work Today
2/21/2006	351	0.00E+00	0.00E+00	
2/22/2006	371	1.49E-15	5.53E-13	
2/23/2006	0	0.00E+00	0.00E+00	
2/24/2006	398	0.00E+00	0.00E+00	
	1526	2.20E-15	8.40E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

5.50E-16 uCi/ml

Percentage of Release Limit of =

13.76%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/20/2006	389	0.00E+00	0.00E+00	No Work Today
2/21/2006	344	0.00E+00	0.00E+00	
2/22/2006	372	8.62E-16	3.21E-13	
2/23/2006	0	0.00E+00	0.00E+00	
2/24/2006	397	0.00E+00	0.00E+00	
	1502	8.62E-16	3.21E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

2.13E-16 uCi/ml

Percentage of Release Limit of =

5.34%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

Report No. 7

Monday February 20, 2006 - Friday February 24, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N017	2/20/2006	8:06am	2:51pm	405	45	1.81E+07	2/21/2006	60	10	1.66667	3.78E-14	2/24/2006	8	9	0	0.00E+00	0.00%
S017	2/20/2006	8:15am	2:45pm	390	48	1.86E+07	2/21/2006	83	10	2.43333	5.38E-14	2/24/2006	10	9	0.033	7.36E-16	18.41%
E017	2/20/2006	8:04am	2:50pm	406	48	1.93E+07	2/21/2006	61	10	1.7	3.61E-14	2/24/2006	10	9	0.033	7.07E-16	17.68%
W017	2/20/2006	8:17am	2:46pm	389	47	1.81E+07	2/21/2006	84	10	2.46667	5.58E-14	2/24/2006	9	9	0	0.00E+00	0.00%
N018	2/21/2006	8:05am	1:55pm	350	48	1.66E+07	2/22/2006	74	11	2.1	5.17E-14	2/26/2006	12	11	0.033	8.21E-16	20.51%
S018	2/21/2006	8:10am	1:50pm	340	46	1.55E+07	2/22/2006	65	11	1.8	4.76E-14	2/26/2006	8	11	0	0.00E+00	0.00%
E018	2/21/2006	8:03am	1:54pm	351	52	1.81E+07	2/22/2006	54	11	1.43333	3.25E-14	2/26/2006	9	11	0	0.00E+00	0.00%
W018	2/21/2006	8:07am	1:51pm	344	51	1.74E+07	2/22/2006	59	11	1.6	3.77E-14	2/26/2006	10	11	0	0.00E+00	0.00%
N019	2/22/2006	8:05am	2:17pm	372	46	1.70E+07	2/23/2006	143	8	4.5	1.09E-13	2/26/2006	8	11	0	0.00E+00	0.00%
S019	2/22/2006	8:08am	2:19pm	371	44	1.62E+07	2/23/2006	146	8	4.6	1.17E-13	2/26/2006	11	11	0	0.00E+00	0.00%
E019	2/22/2006	8:04am	2:15pm	371	50	1.84E+07	2/23/2006	138	8	4.33333	9.66E-14	2/26/2006	13	11	0.067	1.49E-15	37.16%
W019	2/22/2006	8:09am	2:21pm	372	43	1.59E+07	2/23/2006	110	8	3.4	8.79E-14	2/26/2006	12	11	0.033	8.62E-16	21.55%
No Field Work on 2/23/06																	
N020	2/24/2006	8:06am	2:45pm	399	51	2.02E+07	2/26/2006	22	10	0.4	8.13E-15	2/28/2006	7	9	0	0.00E+00	0.00%
S020	2/24/2006	8:09am	2:47pm	398	40	1.58E+07	2/26/2006	17	10	0.23333	6.06E-15	2/28/2006	9	9	0	0.00E+00	0.00%
E020	2/24/2006	8:07am	2:45pm	398	50	1.97E+07	2/26/2006	13	10	0.1	2.08E-15	2/28/2006	9	9	0	0.00E+00	0.00%
W020	2/24/2006	8:10am	2:47pm	397	49	1.93E+07	2/26/2006	19	10	0.3	6.38E-15	2/28/2006	8	9	0	0.00E+00	0.00%

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #8 2/27/06 - 3/3/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/27/2006	0	0.00E+00	0.00E+00	No Work Today
2/28/2006	409	1.33E-15	5.44E-13	
3/1/2006	424	0.00E+00	0.00E+00	
3/2/2006	100	0.00E+00	0.00E+00	
3/3/2006	381	0.00E+00	0.00E+00	
	1314	1.33E-15	5.44E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

4.14E-16 uCi/ml

Percentage of Release Limit of =

10.35%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/27/2006	0	0.00E+00	0.00E+00	No Work Today
2/28/2006	412	0.00E+00	0.00E+00	
3/1/2006	408	7.22E-16	2.95E-13	
3/2/2006	112	2.48E-15	2.78E-13	
3/3/2006	394	7.04E-16	2.77E-13	
	1326	3.91E-15	8.50E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

6.41E-16 uCi/ml

Percentage of Release Limit of =

16.02%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/27/2006	0	0.00E+00	0.00E+00	No Work Today
2/28/2006	414	7.77E-16	3.22E-13	
3/1/2006	418	1.69E-15	7.06E-13	
3/2/2006	100	0.00E+00	0.00E+00	
3/3/2006	381	0.00E+00	0.00E+00	
	1313	2.47E-15	1.03E-12	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

7.83E-16 uCi/ml

Percentage of Release Limit of =

19.58%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
2/27/2006	0	0.00E+00	0.00E+00	No Work Today
2/28/2006	411	6.88E-16	2.83E-13	
3/1/2006	414	0.00E+00	0.00E+00	
3/2/2006	109	0.00E+00	0.00E+00	
3/3/2006	395	0.00E+00	0.00E+00	
	1329	6.88E-16	2.83E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

2.13E-16 uCi/ml

Percentage of Release Limit of =

5.32%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

## Report No. 8

Monday February 27, 2006 - Friday March 3, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Field Work on Monday February 27, 2006																	
N021	2/28/2006	8:07am	2:56pm	409	52	2.11E+07	3/1/2006	21	10	0.36667	7.32E-15	3/5/2006	10	8	0.067	1.33E-15	33.26%
S021	2/28/2006	8:00am	2:52pm	412	49	2.00E+07	3/1/2006	28	10	0.6	1.26E-14	3/5/2006	7	8	0	0.00E+00	0.00%
E021	2/28/2006	8:05am	2:59pm	414	44	1.81E+07	3/1/2006	34	10	0.8	1.86E-14	3/5/2006	9	8	0.033	7.77E-16	19.41%
W021	2/28/2006	8:02am	2:53pm	411	50	2.04E+07	3/1/2006	18	10	0.26667	5.51E-15	3/5/2006	9	8	0.033	6.88E-16	17.21%
N022	3/1/2006	8:03am	3:01pm	424	47	1.97E+07	3/2/2006	36	11	0.83333	1.77E-14	3/5/2006	8	8	0	0.00E+00	0.00%
S022	3/1/2006	8:07am	2:55pm	408	48	1.94E+07	3/2/2006	60	11	1.63333	3.54E-14	3/5/2006	9	8	0.033	7.22E-16	18.06%
E022	3/1/2006	8:06am	3:04pm	418	40	1.66E+07	3/2/2006	37	11	0.86667	2.20E-14	3/5/2006	10	8	0.067	1.69E-15	42.30%
W022	3/1/2006	8:05am	2:59pm	414	43	1.76E+07	3/2/2006	48	11	1.23333	2.94E-14	3/5/2006	8	8	0	0.00E+00	0.00%
N023	3/2/2006	8:12am	9:52am	100	47	4.66E+06	3/3/2006	14	9	0.16667	1.50E-14	3/6/2006	11	12	0	0.00E+00	0.00%
S023	3/2/2006	7:52am	9:44am	112	51	5.66E+06	3/3/2006	17	9	0.26667	1.98E-14	3/6/2006	13	12	0.033	2.48E-15	61.91%
E023	3/2/2006	8:10am	9:50am	100	51	5.05E+06	3/3/2006	10	9	0.03333	2.77E-15	3/6/2006	8	12	0	0.00E+00	0.00%
W023	3/2/2006	7:54am	9:43am	109	52	5.62E+06	3/3/2006	18	9	0.3	2.25E-14	3/6/2006	10	12	0	0.00E+00	0.00%
N024	3/3/2006	7:56am	2:17pm	381	45	1.70E+07	3/5/2006	15	8	0.23333	5.78E-15	3/7/2006	9	10	0	0.00E+00	0.00%
S024	3/3/2006	7:56am	2:30pm	394	51	1.99E+07	3/5/2006	23	8	0.5	1.06E-14	3/7/2006	11	10	0.033	7.04E-16	17.60%
E024	3/3/2006	7:54am	2:15pm	381	51	1.93E+07	3/5/2006	18	8	0.33333	7.28E-15	3/7/2006	7	10	0	0.00E+00	0.00%
W024	3/3/2006	7:57am	2:32pm	395	53	2.07E+07	3/5/2006	14	8	0.2	4.05E-15	3/7/2006	10	10	0	0.00E+00	0.00%

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #9 3/6/06 - 3/10/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/6/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/7/2006	395	6.89E-16	2.72E-13	
3/8/2006	414	0.00E+00	0.00E+00	
3/9/2006	0	0.00E+00	0.00E+00	No Work Today
3/10/2006	403	0.00E+00	0.00E+00	
	1212	6.89E-16	2.72E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

2.25E-16 uCi/ml

Percentage of Release Limit of =

5.61%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/6/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/7/2006	413	0.00E+00	0.00E+00	
3/8/2006	398	1.55E-15	6.17E-13	
3/9/2006	0	0.00E+00	0.00E+00	No Work Today
3/10/2006	412	0.00E+00	0.00E+00	
	1223	1.55E-15	6.17E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

5.04E-16 uCi/ml

Percentage of Release Limit of =

12.61%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/6/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/7/2006	394	0.00E+00	0.00E+00	
3/8/2006	414	1.52E-15	6.29E-13	
3/9/2006	0	0.00E+00	0.00E+00	No Work Today
3/10/2006	399	0.00E+00	0.00E+00	
	1207	1.52E-15	6.29E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

5.21E-16 uCi/ml

Percentage of Release Limit of =

13.03%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/6/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/7/2006	411	0.00E+00	0.00E+00	
3/8/2006	398	0.00E+00	0.00E+00	
3/9/2006	0	0.00E+00	0.00E+00	No Work Today
3/10/2006	407	7.40E-16	3.01E-13	
	1216	7.40E-16	3.01E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

2.48E-16 uCi/ml

Percentage of Release Limit of =

6.19%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

## Report No. 9

Monday March 6, 2006 - Friday March 10, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	4.00E-15 uCi/ml
No Area Air Monitoring Performed on 3/6/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	
N025	3/7/2006	8:05am	2:40pm	395	52	2.04E+07	3/8/2006	26	9	0.56667	1.17E-14	3/12/2006	11	10	0.033	6.89E-16	17.22%
S025	3/7/2006	8:08am	3:01pm	413	40	1.64E+07	3/8/2006	31	9	0.73333	1.88E-14	3/12/2006	7	10	0	0.00E+00	0.00%
E025	3/7/2006	8:03am	2:37pm	394	50	1.95E+07	3/8/2006	22	9	0.43333	9.33E-15	3/12/2006	10	10	0	0.00E+00	0.00%
W025	3/7/2006	8:09am	3:00pm	411	51	2.08E+07	3/8/2006	25	9	0.53333	1.08E-14	3/12/2006	10	10	0	0.00E+00	0.00%
N026	3/8/2006	7:57am	2:51pm	414	54	2.22E+07	3/10/2006	42	7	1.16667	2.21E-14	3/12/2006	9	10	0	0.00E+00	0.00%
S026	3/8/2006	7:52am	2:30pm	398	46	1.81E+07	3/10/2006	35	7	0.93333	2.16E-14	3/12/2006	12	10	0.067	1.55E-15	38.63%
E026	3/8/2006	7:56am	2:50pm	414	45	1.85E+07	3/10/2006	33	7	0.86667	1.97E-14	3/12/2006	12	10	0.067	1.52E-15	37.97%
W026	3/8/2006	7:54am	2:32pm	398	46	1.81E+07	3/10/2006	48	7	1.36667	3.17E-14	3/12/2006	8	10	0	0.00E+00	0.00%
No Field Work on 3/9/06 Due to Rain																	
N027	3/10/2006	7:58am	2:41pm	403	45	1.80E+07	3/11/2006	46	11	1.16667	2.73E-14	3/14/2006	11	12	0	0.00E+00	0.00%
S027	3/10/2006	7:53am	2:45pm	412	48	1.96E+07	3/11/2006	31	11	0.66667	1.43E-14	3/14/2006	12	12	0	0.00E+00	0.00%
E027	3/10/2006	7:56am	2:35pm	399	47	1.86E+07	3/11/2006	30	11	0.63333	1.43E-14	3/14/2006	9	12	0	0.00E+00	0.00%
W027	3/10/2006	7:55am	2:42pm	407	47	1.90E+07	3/11/2006	42	11	1.03333	2.29E-14	3/14/2006	13	12	0.033	7.40E-16	18.49%

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #10 3/13/06 - 3/17/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/13/2006	305	1.05E-15	3.20E-13	
3/14/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/16/2005	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/17/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	305	1.05E-15	3.20E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 1.05E-15 uCi/ml

Percentage of Release Limit of = 26.25%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/13/2006	209	0.00E+00	0.00E+00	
3/14/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/16/2005	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/17/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	209	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/13/2006	308	0.00E+00	0.00E+00	
3/14/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/16/2005	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/17/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	308	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
3/13/2006	207	0.00E+00	0.00E+00	
3/14/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/16/2005	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
3/17/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	207	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%

*Chicago, IL*

**Monday March 13, 2006 - Friday March 17, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
N028	3/13/2006	8:00am	1:05pm	305	44	1.33E+07	3/14/2006	65	12	1.76667	5.59E-14	3/17/2006	11	10	0.033	1.05E-15	26.35%
S028	3/13/2006	7:51am	11:20am	209	50	1.04E+07	3/14/2006	31	12	0.63333	2.57E-14	3/17/2006	9	10	0	0.00E+00	0.00%
E028	3/13/2006	7:56am	1:04pm	308	43	1.31E+07	3/14/2006	72	12	2	6.41E-14	3/17/2006	8	10	0	0.00E+00	0.00%
W028	3/13/2006	7:53am	11:20am	207	44	9.03E+06	3/14/2006	27	12	0.5	2.33E-14	3/17/2006	8	10	0	0.00E+00	0.00%
No Area Air Air Monitoring Performed on 3/14/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	
No Area Air Air Monitoring Performed on 3/15/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	
No Area Air Air Monitoring Performed on 3/16/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	
No Area Air Air Monitoring Performed on 3/17/06 - No Handling of Thorium Impacted Soil Today (Stripping Only)																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #11 5/8/06 - 5/12/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/8/2006	0	0.00E+00	0.00E+00	No Work on Monday May 8, 2006
5/9/2006	378	1.78E-15	6.73E-13	
5/10/2006	407	0.00E+00	0.00E+00	
5/11/2006	0	0.00E+00	0.00E+00	No Area Air Monitoring Due to Rain
5/12/2006	0	0.00E+00	0.00E+00	No Work on Friday May 12, 2006
	785	1.78E-15	6.73E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 8.57E-16 uCi/ml

Percentage of Release Limit of = 21.43%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/8/2006	0	0.00E+00	0.00E+00	No Work on Monday May 8, 2006
5/9/2006	385	0.00E+00	0.00E+00	
5/10/2006	401	7.67E-16	3.08E-13	
5/11/2006	0	0.00E+00	0.00E+00	No Area Air Monitoring Due to Rain
5/12/2006	0	0.00E+00	0.00E+00	No Work on Friday May 12, 2006
	786	7.67E-16	3.08E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 3.91E-16 uCi/ml

Percentage of Release Limit of = 9.78%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/8/2006	0	0.00E+00	0.00E+00	No Work on Monday May 8, 2006
5/9/2006	378	0.00E+00	0.00E+00	
5/10/2006	405	8.32E-16	3.37E-13	
5/11/2006	0	0.00E+00	0.00E+00	No Area Air Monitoring Due to Rain
5/12/2006	0	0.00E+00	0.00E+00	No Work on Friday May 12, 2006
	783	8.32E-16	3.37E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 4.30E-16 uCi/ml

Percentage of Release Limit of = 10.76%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/8/2006	0	0.00E+00	0.00E+00	No Work on Monday May 8, 2006
5/9/2006	385	0.00E+00	0.00E+00	
5/10/2006	404	0.00E+00	0.00E+00	
5/11/2006	0	0.00E+00	0.00E+00	No Area Air Monitoring Due to Rain
5/12/2006	0	0.00E+00	0.00E+00	No Work on Friday May 12, 2006
	789	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%

*Chicago, IL*

**Monday May 8, 2006 - Friday May 12, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Work on Monday May 8, 2006																	
N029	5/9/2006	8:28am	2:46pm	378	42	1.57E+07	5/10/2006	90	8	2.73333	7.31E-14	5/15/2006	13	11	0.067	1.78E-15	44.55%
S029	5/9/2006	8:25am	2:50pm	385	40	1.53E+07	5/10/2006	88	8	2.66667	7.35E-14	5/15/2006	11	11	0	0.00E+00	0.00%
E029	5/9/2006	8:27am	2:45pm	378	47	1.76E+07	5/10/2006	73	8	2.16667	5.18E-14	5/15/2006	10	11	0	0.00E+00	0.00%
W029	5/9/2006	8:26am	2:51pm	385	36	1.37E+07	5/10/2006	84	8	2.53333	7.76E-14	5/15/2006	11	11	0	0.00E+00	0.00%
N030	5/10/2006	8:01am	2:48pm	407	45	1.82E+07	5/11/2006	136	12	4.13333	9.58E-14	5/15/2006	10	11	0	0.00E+00	0.00%
S030	5/10/2006	8:10am	2:51pm	401	46	1.83E+07	5/11/2006	121	12	3.63333	8.36E-14	5/15/2006	12	11	0.033	7.67E-16	19.17%
E030	5/10/2006	8:00am	2:45pm	405	42	1.69E+07	5/11/2006	139	12	4.23333	1.06E-13	5/15/2006	12	11	0.033	8.32E-16	20.79%
W030	5/10/2006	8:06am	2:50pm	404	45	1.80E+07	5/11/2006	107	12	3.16667	7.39E-14	5/15/2006	9	11	0	0.00E+00	0.00%
No Area Air Monitoring Performed on May 11, 2006 Due to Rain																	
No Work on Friday May 12, 2006																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #12 5/15/06 - 5/19/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/16/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/17/2006	192	0.00E+00	0.00E+00	
5/18/2006	354	8.69E-16	3.08E-13	
5/19/2006	393	0.00E+00	0.00E+00	
	939	8.69E-16	3.08E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

3.28E-16 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

8.19%

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/16/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/17/2006	177	1.74E-15	3.08E-13	
5/18/2006	368	0.00E+00	0.00E+00	
5/19/2006	396	0.00E+00	0.00E+00	
	941	1.74E-15	3.08E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

3.27E-16 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

8.18%

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/16/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/17/2006	186	1.52E-15	2.83E-13	
5/18/2006	377	1.63E-15	6.15E-13	
5/19/2006	394	7.64E-16	3.01E-13	
	957	3.91E-15	1.20E-12	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

1.25E-15 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

31.30%

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/15/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/16/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/17/2006	195	0.00E+00	0.00E+00	
5/18/2006	351	8.57E-16	3.01E-13	
5/19/2006	394	0.00E+00	0.00E+00	
	940	8.57E-16	3.01E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

3.20E-16 uCi/ml

Percentage of Release Limit of =

8.00%

# Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Parcel K and Parcel 21 (Former Kraft Building) Project

Chicago, IL

Report No. 12

Monday May 15, 2006 - Friday May 19, 2006

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Area Air Air Monitoring Performed on 5/15/06 - No Handling of Thorium Impacted Soil Today																	
No Area Air Air Monitoring Performed on 5/16/06 - No Handling of Thorium Impacted Soil Today																	
N031	5/17/2006	10:34am	1:46pm	192	45	8.56E+06	5/18/2006	18	8	0.33333	1.64E-14	5/22/2006	10	11	0	0.00E+00	0.00%
S031	5/17/2006	10:48am	1:45pm	177	46	8.07E+06	5/18/2006	19	8	0.36667	1.91E-14	5/22/2006	12	11	0.033	1.74E-15	43.44%
E031	5/17/2006	10:47am	1:53pm	186	50	9.22E+06	5/18/2006	14	8	0.2	9.13E-15	5/22/2006	12	11	0.033	1.52E-15	38.03%
W031	5/17/2006	10:36am	1:51pm	195	48	9.28E+06	5/18/2006	17	8	0.3	1.36E-14	5/22/2006	8	11	0	0.00E+00	0.00%
N032	5/18/2006	8:25am	2:19pm	354	46	1.61E+07	5/19/2006	13	10	0.1	2.61E-15	5/23/2006	10	9	0.033	8.69E-16	21.72%
S032	5/18/2006	8:31am	2:39pm	368	52	1.90E+07	5/19/2006	17	10	0.23333	5.17E-15	5/23/2006	9	9	0	0.00E+00	0.00%
E032	5/18/2006	8:28am	2:45pm	377	46	1.72E+07	5/19/2006	14	10	0.13333	3.26E-15	5/23/2006	11	9	0.067	1.63E-15	40.79%
W032	5/18/2006	8:26am	2:17pm	351	47	1.63E+07	5/19/2006	16	10	0.2	5.14E-15	5/23/2006	10	9	0.033	8.57E-16	21.44%
N033	5/19/2006	8:02am	2:35pm	393	47	1.83E+07	5/22/2006	14	11	0.1	2.30E-15	5/24/2006	9	10	0	0.00E+00	0.00%
S033	5/19/2006	8:01am	2:37pm	396	47	1.84E+07	5/22/2006	12	11	0.03333	7.60E-16	5/24/2006	9	10	0	0.00E+00	0.00%
E033	5/19/2006	8:03am	2:37pm	394	47	1.84E+07	5/22/2006	15	11	0.13333	3.06E-15	5/24/2006	11	10	0.033	7.64E-16	19.10%
W033	5/19/2006	8:02am	2:36pm	394	43	1.68E+07	5/22/2006	18	11	0.23333	5.84E-15	5/24/2006	10	10	0	0.00E+00	0.00%

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #13 5/22/06 - 5/26/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/22/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/23/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/24/2006	497	0.00E+00	0.00E+00	
5/25/2006	291	1.94E-15	5.65E-13	
5/26/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
788		1.94E-15	5.65E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

7.16E-16 uCi/ml

Percentage of Release Limit of =

17.91%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/22/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/23/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/24/2006	504	0.00E+00	0.00E+00	
5/25/2006	289	0.00E+00	0.00E+00	
5/26/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
793		0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

0.00E+00 uCi/ml

Percentage of Release Limit of =

0.00%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/22/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/23/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/24/2006	502	0.00E+00	0.00E+00	
5/25/2006	289	9.41E-16	2.72E-13	
5/26/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
791		9.41E-16	2.72E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

3.44E-16 uCi/ml

Percentage of Release Limit of =

8.60%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/22/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/23/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
5/24/2006	497	6.19E-16	3.08E-13	
5/25/2006	285	1.10E-15	3.14E-13	
5/26/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
782		1.72E-15	6.21E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$$\sum T_s$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

7.94E-16 uCi/ml

Percentage of Release Limit of =

19.86%

1

**Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)**  
*Parcel K and Parcel 21 (Former Kraft Building) Project Chicago, IL*

**Report No. 13 Monday May 22, 2006 - Friday May 26, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Area Air Air Monitoring Performed on 5/22/06 - No Handling of Thorium Impacted Soil Today																	
No Area Air Air Monitoring Performed on 5/23/06 - No Handling of Thorium Impacted Soil Today																	
N034	5/24/2006	8:05am	4:22pm	497	48	2.36E+07	5/25/2006	86	9	2.56667	4.57E-14	5/30/2006	8	10	0	0.00E+00	0.00%
S034	5/24/2006	8:07am	4:31pm	504	45	2.25E+07	5/25/2006	131	9	4.06667	7.61E-14	5/30/2006	10	10	0	0.00E+00	0.00%
E034	5/24/2006	8:08am	4:30pm	502	45	2.24E+07	5/25/2006	158	9	4.96667	9.33E-14	5/30/2006	9	10	0	0.00E+00	0.00%
W034	5/24/2006	8:07am	4:24pm	497	46	2.27E+07	5/25/2006	77	9	2.26667	4.21E-14	5/30/2006	11	10	0.033	6.19E-16	15.47%
N035	5/25/2006	8:05am	12:56pm	291	50	1.44E+07	5/26/2006	122	11	3.7	1.08E-13	5/30/2006	12	10	0.067	1.94E-15	48.61%
S035	5/25/2006	8:05am	12:54pm	289	52	1.49E+07	5/26/2006	142	11	4.36667	1.23E-13	5/30/2006	9	10	0	0.00E+00	0.00%
E035	5/25/2006	8:04am	12:53pm	289	52	1.49E+07	5/26/2006	71	11	2	5.65E-14	5/30/2006	11	10	0.033	9.41E-16	23.53%
W035	5/25/2006	8:06am	12:51pm	285	45	1.27E+07	5/26/2006	103	11	3.06667	1.01E-13	5/30/2006	11	10	0.033	1.10E-15	27.58%
No Area Air Air Monitoring Performed on 5/26/06 - No Handling of Thorium Impacted Soil Today																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #14 5/29/06 - 6/2/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/29/2006	0	0.00E+00	0.00E+00	No Work - Memorial Day
5/30/2006	386	1.41E-15	5.44E-13	
5/31/2006	409	7.52E-16	3.08E-13	
6/1/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/2/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
	795	2.16E-15	8.52E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

1.07E-15 uCi/ml

Percentage of Release Limit of =

26.79%

4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/29/2006	0	0.00E+00	0.00E+00	No Work - Memorial Day
5/30/2006	400	8.22E-16	3.29E-13	
5/31/2006	410	0.00E+00	0.00E+00	
6/1/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/2/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
	810	8.22E-16	3.29E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

4.06E-16 uCi/ml

Percentage of Release Limit of =

10.15%

4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/29/2006	0	0.00E+00	0.00E+00	No Work - Memorial Day
5/30/2006	386	1.47E-15	5.67E-13	
5/31/2006	414	0.00E+00	0.00E+00	
6/1/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/2/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
	800	1.47E-15	5.67E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

7.09E-16 uCi/ml

Percentage of Release Limit of =

17.73%

4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
5/29/2006	0	0.00E+00	0.00E+00	No Work - Memorial Day
5/30/2006	398	0.00E+00	0.00E+00	
5/31/2006	409	0.00E+00	0.00E+00	
6/1/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/2/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
	807	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

$\sum T_s$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

0.00E+00 uCi/ml

Percentage of Release Limit of =

0.00%

1

**Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)**  
*Parcel K and Parcel 21 (Former Kraft Building) Project Chicago, IL*

**Report No. 14                      Monday May 29, 2006 - Friday June 2, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Work on May 29, 2006 - Memorial Day Holiday																	
N036	5/30/2006	8:14am	2:40pm	386	52	1.99E+07	5/31/2006	98	8	3	6.34E-14	6/5/2006	10	8	0.067	1.41E-15	35.24%
S036	5/30/2006	8:05am	2:45pm	400	43	1.70E+07	5/31/2006	180	8	5.73333	1.41E-13	6/5/2006	9	8	0.033	8.22E-16	20.56%
E036	5/30/2006	8:16am	2:42pm	386	50	1.91E+07	5/31/2006	162	8	5.13333	1.13E-13	6/5/2006	10	8	0.067	1.47E-15	36.65%
W036	5/30/2006	8:06am	2:44pm	398	47	1.85E+07	5/31/2006	179	8	5.7	1.29E-13	6/5/2006	8	8	0	0.00E+00	0.00%
N037	5/31/2006	7:59am	2:48pm	409	46	1.86E+07	6/1/2006	43	10	1.1	2.48E-14	6/5/2006	9	8	0.033	7.52E-16	18.80%
S037	5/31/2006	8:01am	2:51pm	410	45	1.83E+07	6/1/2006	32	10	0.73333	1.69E-14	6/5/2006	7	8	0	0.00E+00	0.00%
E037	5/31/2006	7:56am	2:50pm	414	47	1.93E+07	6/1/2006	51	10	1.36667	2.98E-14	6/5/2006	8	8	0	0.00E+00	0.00%
W037	5/31/2006	8:03am	2:52pm	409	46	1.86E+07	6/1/2006	30	10	0.66667	1.50E-14	6/5/2006	8	8	0	0.00E+00	0.00%
No Work on June 1, 2006 due to Laborer's Strike																	
No Work on June 2, 2006 due to Laborer's Strike																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #15 6/5/06 - 6/9/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
6/5/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/6/2006	413	0.00E+00	0.00E+00	
6/7/2006	430	7.00E-16	3.01E-13	
6/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
6/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	843	7.00E-16	3.01E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) = 3.57E-16 uCi/ml

Percentage of Release Limit of = 8.93%  
4E-15uCi/ml

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
6/5/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/6/2006	415	6.82E-16	2.83E-13	
6/7/2006	425	0.00E+00	0.00E+00	
6/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
6/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	840	6.82E-16	2.83E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) = 3.37E-16 uCi/ml

Percentage of Release Limit of = 8.42%  
4E-15uCi/ml

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
6/5/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/6/2006	418	1.50E-15	6.27E-13	
6/7/2006	420	7.02E-16	2.95E-13	
6/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
6/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	838	2.20E-15	9.22E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) = 1.10E-15 uCi/ml

Percentage of Release Limit of = 27.50%  
4E-15uCi/ml

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
6/5/2006	0	0.00E+00	0.00E+00	No Work - Laborer Strike
6/6/2006	430	0.00E+00	0.00E+00	
6/7/2006	424	0.00E+00	0.00E+00	
6/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
6/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	854	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) = 0.00E+00 uCi/ml

Percentage of Release Limit of = 0.00%

*Chicago, IL*

**Monday June 5, 2006 - Friday June 9, 2006**

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	
No Work on June 5, 2006 due to Laborers Strike																	
N038	6/6/2006	8:05am	2:58pm	413	50	2.05E+07	6/7/2006	102	9	3.1	6.37E-14	6/11/2006	9	10	0	0.00E+00	0.00%
S038	6/6/2006	8:05am	3:00pm	415	50	2.06E+07	6/7/2006	56	9	1.56667	3.20E-14	6/11/2006	11	10	0.033	6.82E-16	17.04%
E038	6/6/2006	8:06am	3:04pm	418	45	1.86E+07	6/7/2006	84	9	2.5	5.64E-14	6/11/2006	12	10	0.067	1.50E-15	37.60%
W038	6/6/2006	8:02am	3:12pm	430	42	1.79E+07	6/7/2006	92	9	2.76667	6.50E-14	6/11/2006	9	10	0	0.00E+00	0.00%
N039	6/7/2006	7:50am	3:00pm	430	47	2.00E+07	6/8/2006	50	8	1.4	2.94E-14	6/12/2006	12	11	0.033	7.00E-16	17.50%
S039	6/7/2006	7:52am	2:57pm	425	47	1.98E+07	6/8/2006	19	8	0.36667	7.79E-15	6/12/2006	9	11	0	0.00E+00	0.00%
E039	6/7/2006	7:58am	2:58pm	420	48	2.00E+07	6/8/2006	62	8	1.8	3.79E-14	6/12/2006	12	11	0.033	7.02E-16	17.54%
W039	6/7/2006	7:55am	2:59pm	424	50	2.10E+07	6/8/2006	35	8	0.9	1.80E-14	6/12/2006	7	11	0	0.00E+00	0.00%
No Area Air Air Monitoring Performed on 6/8/06 - No Handling of Thorium Impacted Soil Today																	
No Area Air Air Monitoring Performed on 6/9/06 - No Handling of Thorium Impacted Soil Today																	

# Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Parcel K and Parcel 21 (Former Kraft Building) Project

## North Monitor

Report #16 8/7/06 - 8/11/06

(High Volume)

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
8/7/2006	217	1.42E-15	3.08E-13	
8/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/10/2006	56	0.00E+00	0.00E+00	
8/11/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	273	1.42E-15	3.08E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (North) =

1.13E-15 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

28.22%

## South Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
8/7/2006	210	0.00E+00	0.00E+00	
8/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/10/2006	51	0.00E+00	0.00E+00	
8/11/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	261	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (South) =

0.00E+00 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

0.00%

## East Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
8/7/2006	215	1.37E-15	2.95E-13	
8/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/10/2006	55	0.00E+00	0.00E+00	
8/11/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	270	1.37E-15	2.95E-13	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (East) =

1.09E-15 uCi/ml

Percentage of Release Limit of =  
4E-15uCi/ml

27.27%

## West Monitor

Date	Time Sampled (minutes)	Effluent Concentration in uCi/ml	Concentration x Sample Min / Day	Comments
8/7/2006	216	0.00E+00	0.00E+00	
8/8/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/9/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
8/10/2006	44	0.00E+00	0.00E+00	
8/11/2006	0	0.00E+00	0.00E+00	No Handling of Contaminated Soil
	260	0.00E+00	0.00E+00	

$$C_{avg} = \frac{\sum T_{s,i} C_i}{\sum T_s}$$

Eq A.9 NUREG 1400

### Time Weighted Weekly

Effluent Concentration (West) =

0.00E+00 uCi/ml

Percentage of Release Limit of =

0.00%

*Chicago, IL*

**Monday August 7, 2006 - Friday August 11, 2006**

[illegible]

b. **Personal Air Monitoring**



# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 1 January 9 - January 13, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
1/9/2006	Glenn Huber	K001	002-766	2.5	397	992500	1/10/2006	13	11	0.07	1.93E-14 *
1/9/2006	Clyde Perry	K002	006-234	2.5	397	992500	1/10/2006	11	11	0.00	0.00E+00
1/10/2006	Glenn Huber	K003	002-766	2.5	366	915000	1/11/2006	12	10	0.07	2.09E-14 *
1/10/2006	Clyde Perry	K004	006-234	2.5	482	1205000	1/11/2006	16	10	0.20	4.76E-14 *
1/11/2006	Glenn Huber	K005	002-766	2.5	353	882500	1/12/2006	10	11	0.00	0.00E+00
1/11/2006	Clyde Perry	K006	006-234	2.5	374	935000	1/12/2006	11	11	0.00	0.00E+00
1/12/2006	Tim O'Brien	K007	006-234	2.5	310	775000	1/13/2006	10	12	0.00	0.00E+00
1/12/2006	Clyde Perry	K008	002-766	2.5	310	775000	1/13/2006	14	12	0.07	2.47E-14 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 1 January 9 - January 13, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
1/9/2006	Glenn Huber	K001	002-766	2.5	397	992500	1/13/2006	11	12	0.00	0.00E+00	0.00%
1/10/2006	Glenn Huber	K003	002-766	2.5	366	915000	1/14/2006	12	13	0.00	0.00E+00	0.00%
1/10/2006	Clyde Perry	K004	006-234	2.5	482	1205000	1/14/2006	13	13	0.00	0.00E+00	0.00%
1/12/2006	Clyde Perry	K008	002-766	2.5	310	775000	1/17/2006	12	13	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

**Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)**      **Report No. 2 January 16 - January 20, 2006**  
*Parcel K and Parcel 21 (Former Kraft Building) Project*

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
1/16/2006	Glenn Huber	K009	002-766	2.5	385	962500	1/17/2006	13	13	0.00	0.00E+00
1/16/2006	Clyde Perry	K010	006-234	2.5	385	962500	1/17/2006	12	13	0.00	0.00E+00
1/17/2006	Glenn Huber	K011	002-766	2.5	290	725000	1/18/2006	9	10	0.00	0.00E+00
1/17/2006	Clyde Perry	K012	006-234	2.5	465	1162500	1/18/2006	14	10	0.13	3.29E-14 *
1/18/2006	Glenn Huber	K013	006-234	2.5	375	937500	1/19/2006	7	10	0.00	0.00E+00
1/18/2006	Clyde Perry	K014	002-766	2.5	375	937500	1/19/2006	12	10	0.07	2.04E-14 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.

See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 2 January 16 - January 20, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
1/17/2006	Clyde Perry	K012	006-234	2.5	465	1162500	1/23/2006	10	12	0.00	0.00E+00	0.00%
1/18/2006	Clyde Perry	K014	002-766	2.5	375	937500	1/23/2006	10	12	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 3 January 23 - January 27, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
1/23/2006	Tim O'Brien	K015	002-766	2.5	450	1125000	1/24/2006	11	9	0.07	1.70E-14 *
1/23/2006	Clyde Perry	K016	006-234	2.5	450	1125000	1/24/2006	9	9	0.00	0.00E+00
1/24/2006	Tim O'Brien	K017	002-766	2.5	465	1162500	1/25/2006	12	10	0.07	1.65E-14 *
1/24/2006	Clyde Perry	K018	006-234	2.5	465	1162500	1/25/2006	14	10	0.13	3.29E-14 *
1/25/2006	Glenn Huber	K019	006-234	2.5	375	937500	1/26/2006	7	9	0.00	0.00E+00
1/25/2006	Clyde Perry	K020	002-766	2.5	375	937500	1/26/2006	11	9	0.07	2.04E-14 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 3 January 23 - January 27, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
1/23/2006	Tim O'Brien	K015	002-766	2.5	450	1125000	1/27/2006	11	11	0.00	0.00E+00	0.00%
1/24/2006	Tim O'Brien	K017	002-766	2.5	465	1162500	1/29/2006	11	12	0.00	0.00E+00	0.00%
1/24/2006	Clyde Perry	K018	006-234	2.5	465	1162500	1/29/2006	10	12	0.00	0.00E+00	0.00%
1/25/2006	Clyde Perry	K020	002-766	2.5	457	1142500	1/30/2006	11	12	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 4 January 30 - February 3, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
1/31/2006	Tim O'Brien	K021	002-766	2.5	445	1112500	2/1/2006	18	8	0.33	8.60E-14 *
1/31/2006	Clyde Perry	K022	006-234	2.5	445	1112500	2/1/2006	14	8	0.20	5.16E-14 *
2/1/2006	Glenn Huber	K023	006-234	2.5	457	1142500	2/2/2006	17	10	0.23	5.86E-14 *
2/1/2006	Clyde Perry	K024	002-766	2.5	457	1142500	2/2/2006	11	10	0.03	8.37E-15 *
2/3/2006	Tim O'Brien	K025	002-574	2.5	455	1137500	2/6/2006	11	11	0.00	0.00E+00
2/3/2006	Clyde Perry	K026	006-234	2.5	455	1137500	2/6/2006	8	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.

See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 4 January 30 - February 3, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
1/31/2006	Tim O'Brien	K021	002-766	2.5	445	1112500	2/6/2006	12	11	0.03	8.60E-15	1.72%
1/31/2006	Clyde Perry	K022	006-234	2.5	445	1112500	2/6/2006	9	11	0.00	0.00E+00	0.00%
2/1/2006	Glenn Huber	K023	006-234	2.5	457	1142500	2/6/2006	12	11	0.03	8.37E-15	1.67%
2/1/2006	Clyde Perry	K024	002-766	2.5	457	1142500	2/6/2006	11	11	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 5 February 6 - February 10, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
2/6/2006	Tim O'Brien	K027	006-234	2.5	365	912500	see below				
2/6/2006	Clyde Perry	K028	002-574	2.5	365	912500	see below				
<p>No Day After Analysis performed, since we were not onsite the remainder of the week (2/7/06-2/10/06).  The samples were analyzed the first day back, which was 2/13/06. This analysis will serve as the 4 Day Analysis. GAH</p>											

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 5 February 6 - February 10, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
2/6/2006	Tim O'Brien	K027	006-234	2.5	365	912500	2/13/2006	8	9	0.00	0.00E+00	0.00%
2/6/2006	Clyde Perry	K028	002-574	2.5	365	912500	2/13/2006	7	9	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 6 February 13 - February 17, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
2/13/2006	Glenn Huber	K029	002-574	2.5	445	1112500	2/14/2006	7	9	0.00	0.00E+00
2/13/2006	Clyde Perry	K030	002-766	2.5	465	1162500	2/14/2006	9	9	0.00	0.00E+00
2/14/2006	Glenn Huber	K031	002-766	2.5	388	970000	2/15/2006	17	10	0.23	6.90E-14 *
2/14/2006	Clyde Perry	K032	006-234	2.5	388	970000	2/15/2006	13	10	0.10	2.96E-14 *
2/15/2006	Tim O'Brien	K033	006-234	2.5	410	1025000	2/16/2006	8	8	0.00	0.00E+00
2/15/2006	Clyde Perry	K034	002-766	2.5	410	1025000	2/16/2006	10	8	0.07	1.87E-14 *
2/17/2006	Glenn Huber	K035	006-234	2.5	445	1112500	2/18/2006	8	8	0.00	0.00E+00
2/17/2006	Clyde Perry	K036	002-574	2.5	445	1112500	2/18/2006	7	8	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 6 February 13 - February 17, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
2/14/2006	Glenn Huber	K031	002-766	2.5	388	970000	2/19/2006	10	9	0.03	9.86E-15	1.97%
2/14/2006	Clyde Perry	K032	006-234	2.5	388	970000	2/19/2006	7	9	0.00	0.00E+00	0.00%
2/15/2006	Clyde Perry	K034	002-766	2.5	410	1025000	2/19/2006	9	9	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 7 February 20 - February 24, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
2/20/2006	Tim O'Brien	K037	002-574	2.5	460	1150000	2/21/2006	8	10	0.00	0.00E+00
2/20/2006	Clyde Perry	K038	006-234	2.5	460	1150000	2/21/2006	13	10	0.10	2.49E-14 *
2/21/2006	Tim O'Brien	K039	006-234	2.5	450	1125000	2/22/2006	10	11	0.00	0.00E+00
2/21/2006	Odell Morgan	K040	002-766	2.5	450	1125000	2/22/2006	18	11	0.23	5.95E-14 *
2/22/2006	Tim O'Brien	K041	002-766	2.5	400	1000000	2/23/2006	13	8	0.17	4.78E-14 *
2/22/2006	Clyde Perry	K042	006-234	2.5	400	1000000	2/23/2006	8	8	0.00	0.00E+00
2/24/2006	Tim O'Brien	K043	002-766	2.5	455	1137500	2/26/2006	7	10	0.00	0.00E+00
2/24/2006	Clyde Perry	K044	006-234	2.5	455	1137500	2/26/2006	9	10	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 7 February 20 - February 24, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
2/20/2006	Clyde Perry	K038	006-234	2.5	460	1150000	2/24/2006	9	9	0.00	0.00E+00	0.00%
2/21/2006	Odell Morgan	K040	002-766	2.5	450	1125000	2/26/2006	11	10	0.03	8.50E-15	1.70%
2/22/2006	Tim O'Brien	K041	002-766	2.5	400	1000000	2/27/2006	12	11	0.03	9.56E-15	1.91%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 8 February 27 - March 3, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
2/28/2006	Tim O'Brien	K045	006-234	2.5	440	1100000	3/1/2006	7	10	0.00	0.00E+00
2/28/2006	Clyde Perry	K046	002-766	2.5	440	1100000	3/1/2006	9	10	0.00	0.00E+00
3/1/2006	Tim O'Brien	K047	002-766	2.5	454	1135000	3/2/2006	15	11	0.13	3.46E-14 *
3/1/2006	Clyde Perry	K048	006-234	2.5	454	1135000	3/2/2006	10	11	0.00	0.00E+00
3/2/2006	Tim O'Brien	K049	002-766	2.5	135	337500	3/3/2006	7	9	0.00	0.00E+00
3/2/2006	Clyde Perry	K050	006-234	2.5	135	337500	3/3/2006	10	9	0.03	2.91E-14 *
3/3/2006	Glenn Huber	K051	006-234	2.5	410	1025000	3/5/2006	9	8	0.03	9.57E-15 *
3/3/2006	Clyde Perry	K052	002-766	2.5	410	1025000	3/5/2006	9	8	0.03	9.57E-15 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.

See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 8 February 27 - March 3, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
3/1/2006	Tim O'Brien	K047	002-766	2.5	454	1135000	3/5/2006	8	8	0.00	0.00E+00	0.00%
3/2/2006	Clyde Perry	K050	006-234	2.5	135	337500	3/6/2006	10	12	0.00	0.00E+00	0.00%
3/3/2006	Glenn Huber	K051	006-234	2.5	410	1025000	3/7/2006	7	10	0.00	0.00E+00	0.00%
3/3/2006	Clyde Perry	K052	002-766	2.5	410	1025000	3/7/2006	10	10	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 9 March 6 - March 10, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
3/7/2006	Tim O'Brien	K053	002-766	2.5	470	1175000	3/8/2006	14	9	0.17	4.18E-14 *
3/7/2006	Clyde Perry	K054	006-234	2.5	470	1175000	3/8/2006	18	9	0.30	7.52E-14 *
3/8/2006	Tim O'Brien	K055	002-766	2.5	445	1112500	3/10/2006	9	7	0.07	1.76E-14 *
3/8/2006	Clyde Perry	K056	006-234	2.5	445	1112500	3/10/2006	8	7	0.03	8.82E-15 *
3/10/2006	Tim O'Brien	K057	002-766	2.5	450	1125000	3/11/2006	8	11	0.00	0.00E+00
3/10/2006	Clyde Perry	K058	006-234	2.5	450	1125000	3/11/2006	10	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 9 March 6 - March 10, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
3/7/2006	Tim O'Brien	K053	002-766	2.5	470	1175000	3/12/2006	10	10	0.00	0.00E+00	0.00%
3/7/2006	Clyde Perry	K054	006-234	2.5	470	1175000	3/12/2006	9	10	0.00	0.00E+00	0.00%
3/8/2006	Tim O'Brien	K055	002-766	2.5	445	1112500	3/12/2006	7	10	0.00	0.00E+00	0.00%
3/8/2006	Clyde Perry	K056	006-234	2.5	445	1112500	3/12/2006	9	10	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 10 March 13 - March 17, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
3/13/2006	Tim O'Brien	K059	006-234	2.5	435	1087500	3/14/2006	11	12	0.00	0.00E+00
3/13/2006	Clyde Perry	K060	002-766	2.5	435	1087500	3/14/2006	14	12	0.07	1.80E-14 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 10 March 13 - March 17, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
3/13/2006	Clyde Perry	K060	002-766	2.5	435	1087500	3/17/2006	10	10	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 11 May 8 - May 12, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
5/9/2006	Glenn Huber	K061	002-766	2.5	410	1025000	5/10/2006	12	8	0.13	3.83E-14 *
5/9/2006	Andre Gore	K062	006-234	2.5	410	1025000	5/10/2006	16	8	0.27	7.66E-14 *
5/10/2006	Glenn Huber	K063	002-766	2.5	430	1075000	5/11/2006	14	12	0.07	1.83E-14 *
5/10/2006	Andre Gore	K064	006-234	2.5	447	1117500	5/11/2006	19	12	0.23	6.15E-14 *
5/11/2006	Tim O'Brien	K065	006-234	2.5	365	912500	5/15/2006	8	11	0.00	0.00E+00
5/11/2006	Andre Gore	K066	002-766	2.5	365	912500	5/15/2006	10	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 11 May 8 - May 12, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
5/9/2006	Glenn Huber	K061	002-766	2.5	410	1025000	5/15/2006	10	11	0.00	0.00E+00	0.00%
5/9/2006	Andre Gore	K062	006-234	2.5	410	1025000	5/15/2006	10	11	0.00	0.00E+00	0.00%
5/10/2006	Glenn Huber	K063	002-766	2.5	430	1075000	5/15/2006	9	11	0.00	0.00E+00	0.00%
5/10/2006	Andre Gore	K064	006-234	2.5	447	1117500	5/15/2006	11	11	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 12 May 15 - May 19, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
5/17/2006	Glenn Huber	K067	006-234	2.5	395	987500	5/18/2006	9	8	0.03	9.94E-15 *
5/17/2006	Andre Gore	K068	002-766	2.5	395	987500	5/18/2006	8	8	0.00	0.00E+00
5/18/2006	Glenn Huber	K069	006-234	2.5	425	1062500	5/19/2006	9	10	0.00	0.00E+00
5/18/2006	Andre Gore	K070	002-766	2.5	425	1062500	5/19/2006	12	10	0.07	1.85E-14 *
5/19/2006	Glenn Huber	K071	006-234	2.5	450	1125000	5/22/2006	9	11	0.00	0.00E+00
5/19/2006	Andre Gore	K072	002-766	2.5	450	1125000	5/22/2006	11	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 12 May 15 - May 19, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
5/17/2006	Glenn Huber	K067	006-234	2.5	395	987500	5/22/2006	10	11	0.00	0.00E+00	0.00%
5/18/2006	Andre Gore	K070	002-766	2.5	425	1062500	5/23/2006	9	9	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 13 May 22 - May 26, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
5/24/2006	Glenn Huber	K073	006-234	2.5	520	1300000	5/25/2006	11	9	0.07	1.51E-14 *
5/24/2006	Andre Gore	K074	002-766	2.5	520	1300000	5/25/2006	14	9	0.17	3.77E-14 *
5/25/2006	Glenn Huber	K075	006-234	2.5	295	737500	5/26/2006	9	11	0.00	0.00E+00
5/25/2006	Andre Gore	K076	002-766	2.5	295	737500	5/26/2006	11	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 13 May 22 - May 26, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
5/24/2006	Glenn Huber	K073	006-234	2.5	520	1300000	5/30/2006	9	10	0.00	0.00E+00	0.00%
5/24/2006	Andre Gore	K074	002-766	2.5	520	1300000	5/30/2006	9	10	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 14 May 29 - June 2, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
5/30/2006	Glenn Huber	K077	006-234	2.5	435	1087500	5/31/2006	14	8	0.20	5.41E-14 *
5/30/2006	Andre Gore	K078	002-766	2.5	435	1087500	5/31/2006	15	8	0.23	6.32E-14 *
5/31/2006	Glenn Huber	K079	006-234	2.5	430	1075000	6/1/2006	14	10	0.13	3.65E-14 *
5/31/2006	Andre Gore	K080	002-766	2.5	430	1075000	6/1/2006	11	10	0.03	9.13E-15 *

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 14 May 29 - June 2, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
5/30/2006	Glenn Huber	K077	006-234	2.5	435	1087500	6/5/2006	7	8	0.00	0.00E+00	0.00%
5/30/2006	Andre Gore	K078	002-766	2.5	435	1087500	6/5/2006	8	8	0.00	0.00E+00	0.00%
5/31/2006	Glenn Huber	K079	006-234	2.5	430	1075000	6/5/2006	9	8	0.03	9.13E-15	1.83%
5/31/2006	Andre Gore	K080	002-766	2.5	430	1075000	6/5/2006	8	8	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 15 June 5 - June 9, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
6/6/2006	Tim O'Brien	K081	006-234	2.5	455	1137500	6/7/2006	16	9	0.23	6.04E-14 *
6/6/2006	Andre Gore	K082	002-766	2.5	455	1137500	6/7/2006	12	9	0.10	2.59E-14 *
6/7/2006	Tim O'Brien	K083	002-766	2.5	495	1237500	6/8/2006	12	8	0.13	3.17E-14 *
6/7/2006	Andre Gore	K084	006-234	2.5	495	1237500	6/8/2006	7	8	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 15 June 5 - June 9, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
6/6/2006	Tim O'Brien	K081	006-234	2.5	455	1137500	6/11/2006	8	10	0.00	0.00E+00	0.00%
6/6/2006	Andre Gore	K082	002-766	2.5	455	1137500	6/11/2006	9	10	0.00	0.00E+00	0.00%
6/7/2006	Glenn Huber	K083	002-766	2.5	495	1237500	6/12/2006	11	11	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 15A July 24, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
7/24/2006	Marcus Smith	K085	006-234	2.5	230	575000	7/25/2006	9	12	0.00	0.00E+00
7/24/2006	Joel Ahrweiler	K086	002-766	2.5	230	575000	7/25/2006	11	12	0.00	0.00E+00
No 4 day analysis required											

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

# Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 16 August 7, 2006 - August 11, 2006

Parcel K and Parcel 21 (Former Kraft Building) Project

\*\*\* All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
8/7/2006	Glenn Huber	K087	006-234	2.5	275	687500	7/25/2006	7	9	0.00	0.00E+00
8/7/2006	Marcus Smith	K088	002-766	2.5	275	687500	7/25/2006	9	9	0.00	0.00E+00
8/10/2006	Glenn Huber	K089	002-766	2.5	85	212500	7/25/2006	13	11	0.07	9.24E-14 *
8/10/2006	Marcus Smith	K090	006-234	2.5	85	212500	7/25/2006	10	11	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.  
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

**Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)**      **Report No. 16 August 7, 2006 - August 11, 2006**  
*Parcel K and Parcel 21 (Former Kraft Building) Project*

\*\*\*Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)	% of DAC
8/10/2006	Glenn Huber	K089	002-766	2.5	85	212500	8/14/2006	13	13	0.00	0.00E+00	0.00%

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml

## APPENDIX G

### Film Badge Results



### **Parcel K and Parcel 21 – Former Kraft Building Site**

**Instructor: Glenn Huber**

Intentionally Omitted SCR

[illegible]

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## RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0603980129	02/13/06	02/08/06	3	1 OF 1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							01/01/06 - 01/31/06			QTR 1			2006							
00NL1	CONTROL			Pa	CNTRL		M	M	M										1	10/78
00177	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	12/05
00178	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	12/05
00179	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	12/05
00180	VISITOR			Pa	WHBODY	P	M	M	1	M	M	1	M	M	1	M	M	1	1	12/05
00182	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	12/05
FOR MONITORING PERIOD:							01/01/06 - 01/31/06			QTR 1			2006							
00NL1	CONTROL			Pa	CNTRL		M	M	M										2	10/78
00184	#1			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	01/06
00185	#2			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	1	01/06
00186	#3			Pa	CHEST														1	01/06
					NOTE		UNUSED													
00187	#4			Pa	CHEST														1	01/06
					NOTE		UNUSED													
00188	#5			Pa	CHEST														1	01/06
					NOTE		UNUSED													
00189	#5			Pa	CHEST														1	01/06
					NOTE		UNUSED													
00190	#6			Pa	CHEST														1	01/06
					NOTE		UNUSED													

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0606910120	03/15/06	03/10/06	3	1 OF 1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							02/01/06 - 02/28/06			QTR 1			2006							
00NL1	CONTROL	Pa	CNTRL				M	M	M										3	10/78
00177	VISITOR	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	2	12/05
00179	VISITOR	Pa	WHBODY	P			1	1	2	1	1	2	1	1	2	1	1	2	2	12/05
00180	VISITOR	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	1	12/05
00181	VISITOR	Pa	WHBODY	P			M	M	1	M	M	1	M	M	1	M	M	1	1	12/05
00182	VISITOR	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	2	12/05
00184	#1	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	2	01/06
00185	#2	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	2	01/06
00186	#3	Pa	WHBODY				M	M	M	M	M	M	M	M	M	M	M	M	2	01/06
00187	#4	Pa	CHEST																2	01/06
			NOTE			UNUSED														
00188	#5	Pa	CHEST																2	01/06
			NOTE			UNUSED														
00189	#5	Pa	CHEST																2	01/06
			NOTE			UNUSED														
00190	#6	Pa	CHEST																2	01/06
			NOTE			UNUSED														

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0813540174	05/23/08	05/15/06	6	1 OF 1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD							03/01/06	03/31/06		QTR 1			2006							
00NL1	CONTROL			Pa	CNTRL		M	M	M										7	10/78
00177	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	3	12/05
00178	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	3	12/05
00181	VISITOR			Pa	CHEST NOTE		UNUSED			M	M		M	M		M	M		3	12/05
00184	#1			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	4	01/06
00185	#2			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	4	01/06
00186	#3			Pa	CHEST NOTE		UNUSED			M	M	M	M	M	M	M	M	M	4	01/06
00187	#4			Pa	CHEST NOTE		UNUSED												4	01/06
00188	#5			Pa	CHEST NOTE		UNUSED												4	01/06
00189	#5			Pa	CHEST NOTE		UNUSED												4	01/06
00190	#6			Pa	CHEST NOTE		UNUSED												4	01/06

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0613520182	05/22/06	05/15/06	5	1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)	
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE			
FOR MONITORING PERIOD							04/01/06	06/01/06	04/30/06		CNTR 2			2006							
00NL1	CONTROL			Pa	CNTRL		M	M	M											6	10/78
00177	VISITOR			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		3	12/05
00178	VISITOR			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		2	12/05
00179	VISITOR			Pa	CHEST NOTE		UNUSED						1	1	2	1	1	2		3	12/05
00180	VISITOR			Pa	CHEST NOTE		UNUSED						M	M	1	M	M	1		3	12/05
00181	VISITOR			Pa	CHEST NOTE		UNUSED						M	M	1	M	M	1		2	12/05
00182	VISITOR			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		3	12/05
00184	#1			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		3	01/06
00185	#2			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		3	01/06
00186	#3			Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M		3	01/06
00187	#4			Pa	CHEST NOTE		UNUSED													3	01/06

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0613520182	05/22/06	05/15/06	5	2

\*\* LAST PAGE \*\*

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							04/01/06	04/30/06		QTR 2			2006							
00188 #5				Pa	CHEST NOTE		UNUSED												3	01/06
00189 #5				Pa	CHEST NOTE		UNUSED												3	01/06
00190 #6				Pa	CHEST NOTE		UNUSED												3	01/06

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0618020033	07/06/06	06/29/06	4	1 OF 1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							05/01/06 - 05/31/06			QTR 2				2006						
00NL1	CONTROL			Pa	CNTRL		M	M	M										8	10/78
00177	VISITOR			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	5	12/05
00178	VISITOR			Pa	CHEST								M	M	M	M	M	M	4	12/05
					NOTE		UNUSED													
00179	VISITOR			Pa	WHBODY		M	M	M	M	M	M	1	1	2	1	1	2	4	12/05
00181	VISITOR			Pa	CHEST								M	M	1	M	M	1	4	12/05
					NOTE		UNUSED													
00184	#1			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	5	01/06
00185	#2			Pa	WHBODY		M	M	M	M	M	M	M	M	M	M	M	M	5	01/06
00186	#3			Pa	CHEST								M	M	M	M	M	M	5	01/06
					NOTE		UNUSED													
00187	#4			Pa	CHEST														5	01/06
					NOTE		UNUSED													
00188	#5			Pa	CHEST														5	01/06
					NOTE		UNUSED													
00189	#5			Pa	CHEST														5	01/06
					NOTE		UNUSED													
00190	#6			Pa	CHEST														5	01/06
					NOTE		UNUSED													

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67827	NL1	0620120069	07/28/06	07/20/06	4	1

PARTICIPANT NUMBER		NAME		DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)	
		ID NUMBER	BIRTH DATE	SEX			DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE			
FOR MONITORING PERIOD:																					
00NL1	CONTROL						M	M											11	10/78	
00177	VISITOR				Pa CNTRL Pa CHEST NOTE		UNUSED		M	M	M	M	M	M	M	M	M	M	7	12/05	
00178	VISITOR				Pa CHEST NOTE		UNUSED						M	M	M	M	M	M	6	12/05	
00179	VISITOR				Pa CHEST NOTE		UNUSED			M	M	M	1	1	2	1	1	2	6	12/05	
00180	VISITOR				Pa CHEST NOTE		UNUSED						M	M	1	M	M	1	5	12/05	
00181	VISITOR				Pa CHEST NOTE		UNUSED						M	M	1	M	M	1	6	12/05	
00182	VISITOR				Pa CHEST NOTE		UNUSED						M	M	M	M	M	M	5	12/05	
00184	#1				Pa CHEST NOTE		UNUSED			M	M	M	M	M	M	M	M	M	7	01/06	
00185	#2				Pa CHEST NOTE		UNUSED			M	M	M	M	M	M	M	M	M	7	01/06	
00186	#3				Pa CHEST NOTE		UNUSED						M	M	M	M	M	M	7	01/06	
00187	#4				Pa CHEST NOTE		UNUSED												7	01/06	

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ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0620120069	07/26/06	07/20/06	4	2

\*\* LAST PAGE \*\*

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							06/01/06	06	30/06		QTR 2			2006						
00188	#5			Pa	CHEST NOTE		UNUSED												7	01/06
00189	#5			Pa	CHEST NOTE		UNUSED												7	01/06
00190	#6			Pa	CHEST NOTE		UNUSED												7	01/06

M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: RCH

1 - PR 8541 - RPT1308- N1

- 20169



NVLAP LAB CODE 100518-0\*\*

STAN A HUBER CON INC  
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200 N CEDAR ROAD  
NEW LENOX IL 60451

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Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586  
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## RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0618670645	07/12/06	07/05/06	5	1

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							07/01/06 - 07/31/06			QTR 3				2006						
00NL1 CONTROL				Pa	CNTRL		M	M	M											9 10/78
00177 VISITOR				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	8 12/05	
00178 VISITOR				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	5 12/05	
00179 VISITOR				Pa	CHEST NOTE		UNUSED						1	1	2	1	1	2	5 12/05	
00180 VISITOR				Pa	CHEST NOTE		UNUSED						M	M	1	M	M	1	4 12/05	
00181 VISITOR				Pa	CHEST NOTE		UNUSED						M	M	1	M	M	1	5 12/05	
00182 VISITOR				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	4 12/05	
00184 #1				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	8 01/06	
00185 #2				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	6 01/06	
00186 #3				Pa	CHEST NOTE		UNUSED						M	M	M	M	M	M	6 01/06	
00187 #4				Pa	CHEST NOTE		UNUSED												6 01/06	
00188 #5				Pa	CHEST NOTE		UNUSED												6 01/06	

M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: JAS

1 - PR 8531 - RPT1308- N1

- 18645



NVLAP LAB CODE 100518-0\*\*

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## RADIATION DOSIMETRY REPORT

ACCOUNT NO.	SERIES CODE	ANALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO.
67627	NL1	0618670645	07/12/06	07/05/06	5	2

\*\* LAST PAGE \*\*

PARTICIPANT NUMBER	NAME			DOSIMETER	USE	RADIATION QUALITY	DOSE EQUIVALENT (MREM) FOR PERIODS SHOWN BELOW			QUARTERLY ACCUMULATED DOSE EQUIVALENT (MREM)			YEAR TO DATE DOSE EQUIVALENT (MREM)			LIFETIME DOSE EQUIVALENT (MREM)			RECORDS FOR YEAR	INCEPTION DATE (MM/YY)
	ID NUMBER	BIRTH DATE	SEX				DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE		
FOR MONITORING PERIOD:							07/01/06 - 07/31/06			QTR 3				2006						
00189 #5				Pa	CHEST NOTE		UNUSED												6	01/06
00190 #6				Pa	CHEST NOTE		UNUSED												6	01/06

M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: JAS

1 - PR 8531 - RPT1308- N1

- 18645

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NVLAP LAB CODE 10051B-0\*\*

## APPENDIX H

### Equipment Release Survey Results





# RADIATION SURVEY FORM

**SURVEY REFERENCE#:** 003

DATE OF SURVEY: 1/31/06

NAME OF SURVEYOR: Glenn Huber

**SURVEY METER IDENTIFICATION:**

**Mfg: Ludlum**

Background Reading: 0.02 mR/hr

Model: 3

Serial: 95056

**INSTRUMENT ID:**

**Mfg: Ludlum**

Background Reading: 0.3 cpm

**Model: 2200 (scaler) / 43-10 (alpha)**

**Efficiency:** 31.4 %

Serial: 102770 / 113/95-

MDA: 7.5 dpm

[illegible]

# RADIATION SURVEY FORM

**SURVEY REFERENCE #:** 004

DATE OF SURVEY: 6/7/06

NAME OF SURVEYOR: *Tim O'Brien*

**SURVEY METER IDENTIFICATION:**

**Mfg: Ludlum**

**Background Reading:** 0.02 mR/hr

**Model:** 3

Serial: 95056

**INSTRUMENT ID:**

**Mfg: Ludlum**

Background Reading: 6.3 cpm

**Model: 2200 (scaler) / 43-10 (alpha)**

**Efficiency:** 30.6 %

Serial: 102770/113195

MDA: 8.7 dpm

[illegible]

# RADIATION SURVEY FORM

**SURVEY REFERENCE #:** 005

DATE OF SURVEY: 8/7/06

NAME OF SURVEYOR: *Glen Heller*

**SURVEY METER IDENTIFICATION:**

**Mfg: Ludlum**

**Background Reading:** 0.02 mR/hr

Model: 3

Serial: 95056

**INSTRUMENT ID:**

**Mfg: Ludlum**

Background Reading: <sup>G.S</sup> cpm

**Model: 2200 (scaler) / 43-10 (alpha)**

**Efficiency: 30.6 %**

Serial: 102770 / 113191-

MDA: 8.7 dpm

[illegible]



## APPENDIX I

### Instrument Calibrations



# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 134542Probe 44-10 serial number: PR168143Date: 11/28/05

COPY

## Scaler Linear Check

Pulser model/serial number: Ludlum 500 1 142038Calibration Due Date: 11/06

Threshold set to 100 mv. <u>100mV GAH</u> (tech. Init.)			
Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>399</u>	<u>—</u>
<u>4000</u>	X10	<u>3987</u>	<u>—</u>
<u>40K</u>	X100	<u>39939</u>	<u>—</u>
<u>400K</u>	X1000	<u>399459</u>	<u>—</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89</sup><sub>461</sub> #4830  
<sub>12/22/95</sub>

BKGD PLATEAU			SOURCE PLATEAU		
volts	30 sec. source counts	30 sec. Bkg counts	volts	source counts	Bkg counts
<u>700</u>	<u>31650</u>	<u>3847</u>	<u>1100</u>	<u>39710</u>	<u>4643</u>
<u>750</u>	<u>32667</u>	<u>3958</u>	<u>1150</u>	<u>61796</u>	<u>5653</u>
<u>800</u>	<u>33628</u>	<u>4136</u>	<u>1200</u>	<u>123829</u>	<u>7158</u>
<u>850</u>	<u>33630</u>	<u>4172</u>			
<u>900</u>	<u>33441</u>	<u>4226</u>			
<u>950</u>	<u>33882</u>	<u>4227</u>			
<u>1000</u>	<u>34190</u>	<u>4293</u>			
<u>1050</u>	<u>35396</u>	<u>4357</u>			

operating voltage selected: 900V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 134542

Probe 44-10 serial number: PR 168143

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		unshielded	6" shielded
1 minute BKGD counts			
<u>4678</u>	<u>4633</u>	<u>1046</u>	<u>1059</u>
<u>4518</u>	<u>4626</u>	<u>1067</u>	<u>1092</u>
<u>4781</u>	<u>4705</u>	<u>1020</u>	<u>1025</u>
Average: <u>4656.8</u>			Aug: <u>1051.5</u>

## Source Block Data

Source block ID: 2012-5417A  
2012-5427A  
2012-5437A  
2012-5447A

## 1 minute Source Block counts

<u>23948</u>	<u>24110</u>	<u>8416</u>	<u>8206</u>
<u>23877</u>	<u>23852</u>	<u>8164</u>	<u>8315</u>
<u>23808</u>	<u>23991</u>	<u>8261</u>	<u>8124</u>
Average: <u>23931.0</u> cpm	Net Average: <u>19274.2</u> cpm		Aug: <u>8247.7</u> Net Aug: <u>7196.2</u>

## Activity Calculation

Net Average source count rate of: 19274.2 cpm divided by 10 = 1927.42  
Times  $\sqrt{2}$  = 13684.68 (A)  
Square root of (A) = 116.98 times 2 = 233.96 (B)

(A) plus the average BKGD = 18341.48 CPM/7.1 pCi

The cutoff value is: 18,108 (CPM/7.1 pCi minus (B))

6160.8

6018 cpm  
6" shielded

Calibration performed by: CEH

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 126497

Probe 44-10 serial number: PR171991

Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: L-44-500 / 142038

Calibration Due Date: 11/06

Threshold set to 100 mv. 100-v GAT (tech. init.)

Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3999</u>	<u>-</u>
<u>40K</u>	X100	<u>40017</u>	<u>-</u>
<u>400K</u>	X1000	<u>399921</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 0.8946 12/20/51 #4830

### BKGD PLATEAU

volts	30 sec source counts	30 sec Bkg counts
<u>700</u>	<u>28122</u>	<u>3271</u>
<u>750</u>	<u>29567</u>	<u>3839</u>
<u>800</u>	<u>30284</u>	<u>4111</u>
<u>850</u>	<u>30797</u>	<u>4239</u>
<u>900</u>	<u>31527</u>	<u>4159</u>
<u>950</u>	<u>31706</u>	<u>4371</u>
<u>1000</u>	<u>30672</u>	<u>4526</u>
<u>1050</u>	<u>31036</u>	<u>4383</u>

### SOURCE PLATEAU

volts	source counts	Bkg (0-1)
<u>1100</u>	<u>31943</u>	<u>4408</u>
<u>1150</u>	<u>33144</u>	<u>4577</u>
<u>1200</u>	<u>39251</u>	<u>5060</u>

operating voltage selected: 950 v

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 126497

Probe 44-10 serial number: PR 171991

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		6" shield	
unshielded			
1 minute BKGD counts			
<u>6719</u>	<u>6243</u>	<u>2661</u>	<u>2765</u>
<u>6550</u>	<u>6925</u>	<u>3293</u>	<u>3179</u>
<u>6554</u>	<u>7051</u>	<u>3218</u>	<u>3124</u>
Average: <u>6673.7</u>		Avg: <u>3040.0</u>	
Source Block Data		6" shield	
unshielded			
1 minute Source Block counts		Source block ID: <u>2012-5417A</u>	
<u>25861</u>	<u>25879</u>	<u>9983</u>	<u>9636</u>
<u>25393</u>	<u>25241</u>	<u>10003</u>	<u>10169</u>
<u>25869</u>	<u>25855</u>	<u>9885</u>	<u>9394</u>
Average: <u>25683.0</u> cpm		Avg: <u>9845.0</u>	
Net Average: <u>19009.3</u> cpm		Net Avg: <u>6805.0</u>	
Activity Calculation			
Net Average source count rate of: <u>19009.3</u> cpm		divided by 10 = <u>1900.93</u>	
Times $\frac{7.1}{6H}$ = <u>13496.60</u> (A)		(A) <u>4831.55</u>	
Square root of (A) = <u>116.17</u> times 2 = <u>232.34</u> (B)		(B) <u>139.02</u>	
(A) plus the average BKGD = <u>20170.3</u> CPM/ $\frac{7.1}{6H}$ pCi		→ <u>7871.55</u>	
The cutoff value is: <u>19,938</u> (CPM/ $\frac{7.1}{6H}$ pCi minus (B))		<u>7733cpm</u>	
unshielded		shielded	

Calibration performed by: [Signature]

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 126496Probe 44-10 serial number: RN 014211Date: 11/28/05

COPY

## Scaler Linear Check

Pulser model/serial number: 2-44-500 1 142028Calibration Due Date: 11/06Threshold set to 100 mv. 100-1 GAH (tech. Init.)

Pulser setting in cts.	Multiplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	<u>X1</u>	<u>400</u>	<u>-</u>
<u>4000</u>	<u>X10</u>	<u>3997</u>	<u>-</u>
<u>40k</u>	<u>X100</u>	<u>40034</u>	<u>-</u>
<u>400k</u>	<u>X1000</u>	<u>400356</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89</sup><sub>u.c. 1</sub> #4830  
<sub>12/28/15</sub>

### BKGD PLATEAU

volts	30 sec Source counts	30 sec Bkg (cts)
<u>700</u>	<u>37029</u>	<u>3939</u>
<u>750</u>	<u>38038</u>	<u>4293</u>
<u>800</u>	<u>38647</u>	<u>4284</u>
<u>850</u>	<u>38799</u>	<u>4376</u>
<u>900</u>	<u>38737</u>	<u>4543</u>
<u>950</u>	<u>38728</u>	<u>4624</u>
<u>1000</u>	<u>38600</u>	<u>4558</u>
<u>1050</u>	<u>39025</u>	<u>4644</u>

### SOURCE PLATEAU

volts	5 min Source counts	5 min Bkg counts
<u>1100</u>	<u>39538</u>	<u>4798</u>
<u>1150</u>	<u>48156</u>	<u>5519</u>
<u>1200</u>	<u>79460</u>	<u>12120</u>

operating voltage selected: 900v

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 126496

Probe 44-10 serial number: RN014211

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		6" shield	
1 minute BKDG counts			
<u>4529</u>	<u>4672</u>	<u>1249</u>	<u>1161</u>
<u>4555</u>	<u>4413</u>	<u>1091</u>	<u>1160</u>
<u>4521</u>	<u>4686</u>	<u>1239</u>	<u>1148</u>
Average: <u>4562.7</u>		Aug: <u>1174.7</u>	

Source Block Data		Source block ID: <u>2012-5417A</u> <u>2012-5437A</u> <u>2012-5437A</u> <u>2012-5447A</u>	
1 minute Source Block counts			
<u>24970</u>	<u>2503</u>	<u>9484</u>	<u>9171</u>
<u>24906</u>	<u>24613</u>	<u>9138</u>	<u>9136</u>
<u>24944</u>	<u>24780</u>	<u>9196</u>	<u>9393</u>
Average: <u>24871.0</u> cpm	Net Average: <u>20308.3</u> cpm	Aug: <u>9253.0</u>	Net Aug: <u>8078.3</u>

Activity Calculation

Net Average source count rate of: 20308.3 cpm divided by 10 = 2030.83

Times  $\sqrt{2}$  = 14,418.89 (A)

Square root of (A) = 120.08 times 2 = 240.16 (B)

(A) plus the average BKGD = 18981.59 CPM/ $\sqrt{2}$  pCi

The cutoff value is: 18,741 (CPM/ $\sqrt{2}$  pCi minus (B))

unshielded 6" shielded

Calibration performed by: [Signature]

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 172039Probe 44-10 serial number: PR174496Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: L-44-500 1 142038Calibration Due Date: 11/06Threshold set to 100 mv. 100-V GAH (tech. Init.)

Pulser setting in cts.	Multplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3997</u>	<u>-</u>
<u>40k</u>	X100	<u>39949</u>	<u>-</u>
<u>400k</u>	X1000	<u>399643</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 0.89uCi 12/20/51 #4830

### BKGD PLATEAU

volts	30 sec Source counts	30 sec Bkg counts
<u>700</u>	<u>33281</u>	<u>2689</u>
<u>750</u>	<u>37195</u>	<u>3790</u>
<u>800</u>	<u>38170</u>	<u>4047</u>
<u>850</u>	<u>39055</u>	<u>4172</u>
<u>900</u>	<u>40539</u>	<u>4385</u>
<u>950</u>	<u>40753</u>	<u>4249</u>
<u>1000</u>	<u>41573</u>	<u>4531</u>
<u>1050</u>	<u>41806</u>	<u>4491</u>

### SOURCE PLATEAU

volts	Source counts	Bkg counts
<u>1100</u>	<u>41867</u>	<u>4564</u>
<u>1150</u>	<u>43063</u>	<u>4635</u>
<u>1200</u>	<u>48139</u>	<u>4857</u>

operating voltage selected: 1000 V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 172039

Probe 44-10 serial number: PR 174496

Date: 11/28/05



window verified at about 3830

Instrument BKGD		6" shielded	
Unshielded			
1 minute BKGD counts			
<u>4455</u>	<u>4439</u>	<u>1076</u>	<u>1105</u>
<u>4506</u>	<u>4551</u>	<u>1066</u>	<u>1093</u>
<u>4575</u>	<u>4492</u>	<u>1047</u>	<u>1081</u>
Average: <u>4503.0</u>		Avg: <u>1078.0</u>	

Source Block Data		6" shielded	
Unshielded			
1 minute Source Block counts			
<u>25202</u>	<u>24827</u>	<u>9444</u>	<u>9467</u>
<u>25107</u>	<u>24743</u>	<u>9767</u>	<u>9369</u>
<u>25360</u>	<u>25154</u>	<u>9500</u>	<u>9591</u>
Average: <u>25065.5</u> cpm		Avg: <u>9523.1</u>	
Net Average: <u>20563</u> cpm		Net Avg: <u>8445.1</u>	

## Activity Calculation

Net Average source count rate of: 20563 cpm

divided by 10 = 2056.3

Times  $\frac{7.1}{60}$  = 14599.73 (A)

(A) 5995.95

Square root of (A) = 120.83 times 2 = 241.66 (B)

(B) 154.87

(A) plus the average BKGD = 19102.73 CPM/ $\frac{7.1}{60}$  pCi

The cutoff value is: 18,861 cpm (CPM/ $\frac{7.1}{60}$  pCi minus (B))  
Unshielded

→ 7073.95

6919 cpm  
Shielded

Calibration performed by: [Signature]

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 127242Probe 44-10 serial number: PR 168144Date: 11/28/05

COPY

## Scaler Linear Check

Pulser model/serial number: Ludlum 500 1 142038Calibration Due Date: 11/06Threshold set to 100 mv. 100-V GAH (tech. init.)

Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3997</u>	<u>-</u>
<u>40k</u>	X100	<u>39971</u>	<u>-</u>
<u>400k</u>	X1000	<u>399723</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89 uCi</sup> 12/20/95 1 #4830

### BKGD PLATEAU

volts	20sec source counts	30sec Bg counts
<u>700</u>	<u>21137</u>	<u>921</u>
<u>750</u>	<u>27927</u>	<u>1649</u>
<u>800</u>	<u>31716</u>	<u>2482</u>
<u>850</u>	<u>34092</u>	<u>3337</u>
<u>900</u>	<u>36006</u>	<u>3804</u>
<u>950</u>	<u>36699</u>	<u>4070</u>
<u>1000</u>	<u>37478</u>	<u>4010</u>
<u>1050</u>	<u>37867</u>	<u>4183</u>

### SOURCE PLATEAU

volts	50sec source counts	50sec Bg counts
<u>1100</u>	<u>38197</u>	<u>4199</u>
<u>1150</u>	<u>37926</u>	<u>4253</u>
<u>1200</u>	<u>38001</u>	<u>4273</u>

operating voltage selected: 1000 V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 127242

Probe 44-10 serial number: PR 168144

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		Unshielded		6" shielded	
1 minute BKGD counts					
<u>4234</u>	<u>4369</u>	<u>950</u>	<u>951</u>		
<u>4417</u>	<u>4487</u>	<u>1009</u>	<u>988</u>		
<u>4266</u>	<u>4381</u>	<u>981</u>	<u>981</u>		
Average: <u>4359.0</u>		Avg: <u>976.7</u>			

Source Block Data		Source block ID: <u>2012-SV17A</u> <u>2012-SV27A</u> <u>2012-SV37A</u> <u>2012-SV47A</u>	
1 minute Source Block counts			
<u>23844</u>	<u>24159</u>	<u>8747</u>	<u>8612</u>
<u>24004</u>	<u>24136</u>	<u>8956</u>	<u>8793</u>
<u>24268</u>	<u>24109</u>	<u>8721</u>	<u>8975</u>
Average: <u>24086.7</u> cpm		Avg: <u>8800.7</u>	
Net Average: <u>19727.7</u> cpm		Net Avg <u>7824.0</u>	

Activity Calculation	
Net Average source count rate of: <u>19727.7</u> cpm	
divided by 10 = <u>1972.77</u>	
Times <u>7.1</u> = <u>14006.67</u> (A)	(A) <u>5555.04</u>
Square root of (A) = <u>118.35</u> times 2 = <u>236.7</u> (B)	(B) <u>149.06</u>
(A) plus the average BKGD = <u>18365.67</u> CPM/ <u>7.1</u> pCi	→ <u>6531.74</u>
The cutoff value is: <u>18,129</u> (CPM/ <u>7.1</u> pCi minus (B))	<u>6383cpm</u>
<u>unshielded</u>	<u>6" shielded</u>

Calibration performed by: <u>GLH</u>	DATE: <u>11/28/05</u>
Calibration approved by: _____	DATE: _____

## APPENDIX I

### Instrument Calibrations



# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 134542Probe 44-10 serial number: PR168143Date: 11/28/05

COPY

## Scaler Linear Check

Pulser model/serial number: Ludlum 500 1 142038Calibration Due Date: 11/06

Threshold set to 100 mv. <u>100mV GAH</u> (tech. Init.)			
Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>399</u>	<u>—</u>
<u>4000</u>	X10	<u>3987</u>	<u>—</u>
<u>40K</u>	X100	<u>39939</u>	<u>—</u>
<u>400K</u>	X1000	<u>399459</u>	<u>—</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89</sup><sub>461</sub> #4830  
<sub>12/22/95</sub>

BKGD PLATEAU			SOURCE PLATEAU		
volts	30 sec. source counts	30 sec. Bkg counts	volts	source counts	Bkg counts
<u>700</u>	<u>31650</u>	<u>3847</u>	<u>1100</u>	<u>39710</u>	<u>4643</u>
<u>750</u>	<u>32667</u>	<u>3958</u>	<u>1150</u>	<u>61796</u>	<u>5653</u>
<u>800</u>	<u>33628</u>	<u>4136</u>	<u>1200</u>	<u>123829</u>	<u>7158</u>
<u>850</u>	<u>33630</u>	<u>4172</u>			
<u>900</u>	<u>33441</u>	<u>4226</u>			
<u>950</u>	<u>33882</u>	<u>4227</u>			
<u>1000</u>	<u>34190</u>	<u>4293</u>			
<u>1050</u>	<u>35396</u>	<u>4357</u>			

operating voltage selected: 900V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 134542

Probe 44-10 serial number: PR 168143

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		6" shielded	
1 minute BKGD counts			
<u>4678</u>	<u>4633</u>	<u>1046</u>	<u>1059</u>
<u>4518</u>	<u>4626</u>	<u>1067</u>	<u>1092</u>
<u>4781</u>	<u>4705</u>	<u>1020</u>	<u>1025</u>
Average: <u>4656.8</u>		Avg: <u>1051.5</u>	

## Source Block Data

Source block ID: 2012-5417A

## 1 minute Source Block counts

<u>23948</u>	<u>24110</u>	<u>8416</u>	<u>8206</u>
<u>23877</u>	<u>23852</u>	<u>8164</u>	<u>8315</u>
<u>23808</u>	<u>23991</u>	<u>8261</u>	<u>8124</u>
Average: <u>23931.0</u> cpm		Avg: <u>8247.7</u>	
Net Average: <u>19274.2</u> cpm		Net Avg: <u>7196.2</u>	

## Activity Calculation

Net Average source count rate of: 19274.2 cpm divided by 10 = 1927.42

Times  $\sqrt{2}$  = 13684.68 (A) (A) 5109.30

Square root of (A) = 116.98 times 2 = 233.96 (B) (B) 142.96

(A) plus the average BKGD = 18341.48 CPM/7.2 pCi

The cutoff value is: 18,108 (CPM/7.2 pCi minus (B))

6160.8

6018 cpm

6" shielded

Calibration performed by: CEH

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 126497Probe 44-10 serial number: PR171991Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: L-44-500 / 142038Calibration Due Date: 11/06Threshold set to 100 mv. 100-v GAT (tech. init.)

Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3999</u>	<u>-</u>
<u>40K</u>	X100	<u>40017</u>	<u>-</u>
<u>400K</u>	X1000	<u>399921</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.8946</sup> 12/20/51 #4830

### BKGD PLATEAU

volts	30 sec source counts	30 sec Bkg counts
<u>700</u>	<u>28122</u>	<u>3271</u>
<u>750</u>	<u>29567</u>	<u>3839</u>
<u>800</u>	<u>30284</u>	<u>4111</u>
<u>850</u>	<u>30797</u>	<u>4239</u>
<u>900</u>	<u>31527</u>	<u>4159</u>
<u>950</u>	<u>31706</u>	<u>4371</u>
<u>1000</u>	<u>30672</u>	<u>4526</u>
<u>1050</u>	<u>31036</u>	<u>4383</u>

### SOURCE PLATEAU

volts	source counts	Bkg (0-1)
<u>1100</u>	<u>31943</u>	<u>4408</u>
<u>1150</u>	<u>33144</u>	<u>4577</u>
<u>1200</u>	<u>39251</u>	<u>5060</u>

operating voltage selected: 950 v

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 126497

Probe 44-10 serial number: PR 171991

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		6" shield	
unshielded			
1 minute BKGD counts			
<u>6719</u>	<u>6243</u>	<u>2661</u>	<u>2765</u>
<u>6550</u>	<u>6925</u>	<u>3293</u>	<u>3179</u>
<u>6554</u>	<u>7051</u>	<u>3218</u>	<u>3124</u>
Average: <u>6673.7</u>		Avg: <u>3040.0</u>	
Source Block Data		6" shield	
unshielded			
1 minute Source Block counts			
<u>25861</u>	<u>25879</u>	<u>9983</u>	<u>9636</u>
<u>25393</u>	<u>25241</u>	<u>10003</u>	<u>10169</u>
<u>25869</u>	<u>25855</u>	<u>9885</u>	<u>9394</u>
Average: <u>25683.0</u> cpm		Avg: <u>9845.0</u>	
Net Average: <u>19009.3</u> cpm		Net Avg: <u>6805.0</u>	
Activity Calculation			
Net Average source count rate of: <u>19009.3</u> cpm		divided by 10 = <u>1900.93</u>	
Times $\frac{7.1}{64}$ = <u>13496.60</u> (A)		(A) <u>4831.55</u>	
Square root of (A) = <u>116.17</u> times 2 = <u>232.34</u> (B)		(B) <u>139.02</u>	
(A) plus the average BKGD = <u>20170.3</u> CPM/ $\frac{7.1}{64}$ pCi		→ <u>7871.55</u>	
The cutoff value is: <u>19,938</u> (CPM/ $\frac{7.1}{64}$ pCi minus (B))		<u>7733 cpm</u>	
unshielded		shielded	

Calibration performed by: [Signature]

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 126496Probe 44-10 serial number: RN 014211Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: 2-44-500 1 142028Calibration Due Date: 11/06Threshold set to 100 mv. 100-1 GAH (tech. Init.)

Pulser setting in cts.	Multplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	<u>X1</u>	<u>400</u>	<u>-</u>
<u>4000</u>	<u>X10</u>	<u>3997</u>	<u>-</u>
<u>40k</u>	<u>X100</u>	<u>40034</u>	<u>-</u>
<u>400k</u>	<u>X1000</u>	<u>400356</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89</sup><sub>u.c. 1</sub> #4830  
<sub>12/28/15</sub>

### BKGD PLATEAU

volts	30 sec Source counts	30 sec Bkg (cts)
<u>700</u>	<u>37029</u>	<u>3939</u>
<u>750</u>	<u>38038</u>	<u>4293</u>
<u>800</u>	<u>38647</u>	<u>4284</u>
<u>850</u>	<u>38799</u>	<u>4376</u>
<u>900</u>	<u>38737</u>	<u>4543</u>
<u>950</u>	<u>38728</u>	<u>4624</u>
<u>1000</u>	<u>38600</u>	<u>4558</u>
<u>1050</u>	<u>39025</u>	<u>4644</u>

### SOURCE PLATEAU

volts	5 min Source counts	5 min Bkg counts
<u>1100</u>	<u>39538</u>	<u>4798</u>
<u>1150</u>	<u>48156</u>	<u>5519</u>
<u>1200</u>	<u>79460</u>	<u>12120</u>

operating voltage selected: 900v

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 126496

Probe 44-10 serial number: RN014211

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		6" shield	
1 minute BKGD counts			
<u>4529</u>	<u>4672</u>	<u>1249</u>	<u>1161</u>
<u>4555</u>	<u>4413</u>	<u>1091</u>	<u>1160</u>
<u>4521</u>	<u>4686</u>	<u>1239</u>	<u>1148</u>
Average: <u>4562.7</u>		Aug: <u>1174.7</u>	

Source Block Data		Source block ID: <u>2012-5417A</u> <u>2012-5437A</u> <u>2012-5437A</u> <u>2012-5447A</u>	
1 minute Source Block counts			
<u>24970</u>	<u>2503</u>	<u>9484</u>	<u>9171</u>
<u>24906</u>	<u>24613</u>	<u>9138</u>	<u>9136</u>
<u>24944</u>	<u>24780</u>	<u>9196</u>	<u>9393</u>
Average: <u>24871.0</u> cpm	Net Average: <u>20308.3</u> cpm	Aug: <u>9253.0</u>	Net Aug: <u>8078.3</u>

Activity Calculation

Net Average source count rate of: 20308.3 cpm divided by 10 = 2030.83

Times  $\sqrt{2}$  = 14,418.89 (A)

Square root of (A) = 120.08 times 2 = 240.16 (B)

(A) plus the average BKGD = 18981.59 CPM/ $\sqrt{2}$  pCi

The cutoff value is: 18,741 (CPM/ $\sqrt{2}$  pCi minus (B))

unshielded 6" shielded

Calibration performed by: CRH

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 172039Probe 44-10 serial number: PR174496Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: L-44-500 1 142038Calibration Due Date: 11/06Threshold set to 100 mv. 100-V GAH (tech. Init.)

Pulser setting in cts.	Multplyer	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3997</u>	<u>-</u>
<u>40k</u>	X100	<u>39949</u>	<u>-</u>
<u>400k</u>	X1000	<u>399643</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 0.89uCi 12/20/51 #4830

### BKGD PLATEAU

volts	30 sec source counts	30 sec Bkg counts
<u>700</u>	<u>33281</u>	<u>2689</u>
<u>750</u>	<u>37195</u>	<u>3790</u>
<u>800</u>	<u>38170</u>	<u>4047</u>
<u>850</u>	<u>39055</u>	<u>4172</u>
<u>900</u>	<u>40539</u>	<u>4385</u>
<u>950</u>	<u>40753</u>	<u>4249</u>
<u>1000</u>	<u>41573</u>	<u>4531</u>
<u>1050</u>	<u>41806</u>	<u>4491</u>

### SOURCE PLATEAU

volts	source counts	Bkg counts
<u>1100</u>	<u>41867</u>	<u>4564</u>
<u>1150</u>	<u>43063</u>	<u>4635</u>
<u>1200</u>	<u>48139</u>	<u>4857</u>

operating voltage selected: 1000 V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 172039

Probe 44-10 serial number: PR 174496

Date: 11/28/05



window verified at about 3830

Instrument BKGD		6" shielded	
Unshielded			
1 minute BKGD counts			
<u>4455</u>	<u>4439</u>	<u>1076</u>	<u>1105</u>
<u>4506</u>	<u>4551</u>	<u>1066</u>	<u>1093</u>
<u>4575</u>	<u>4492</u>	<u>1047</u>	<u>1081</u>
Average: <u>4503.0</u>		Avg: <u>1078.0</u>	

Source Block Data		6" shielded	
Unshielded			
1 minute Source Block counts			
<u>25202</u>	<u>24827</u>	<u>9444</u>	<u>9467</u>
<u>25107</u>	<u>24743</u>	<u>9767</u>	<u>9369</u>
<u>25360</u>	<u>25154</u>	<u>9500</u>	<u>9591</u>
Average: <u>25065.5</u> cpm		Avg: <u>9523.1</u>	
Net Average: <u>20563</u> cpm		Net Avg: <u>8445.9</u>	

## Activity Calculation

Net Average source count rate of: 20563 cpm

divided by 10 = 2056.3

Times  $\frac{7.1}{60}$  = 14599.73 (A)

(A) 5995.95

Square root of (A) = 120.83 times 2 = 241.66 (B)

(B) 154.87

(A) plus the average BKGD = 19102.73 CPM/ $\frac{7.1}{60}$  pCi

The cutoff value is: 18,861 cpm (CPM/ $\frac{7.1}{60}$  pCi minus (B))

→ 2073.95

6919 cpm  
shielded

Calibration performed by: [Signature]

DATE: 11/28/05

Calibration approved by: \_\_\_\_\_

DATE: \_\_\_\_\_

# Ludlum Model 2221/44-10 Calibration

page 1 of 2

Model 2221 serial number: 127242Probe 44-10 serial number: PR 168144Date: 11/28/05

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## Scaler Linear Check

Pulser model/serial number: Ludlum 500 1 142038Calibration Due Date: 11/06Threshold set to 100 mv. 100-V GAH (tech. init.)

Pulser setting in cts.	Multiplier	As Found Scaler reading in cts.	After Adjustment Scaler reading in cts.
<u>400</u>	X1	<u>400</u>	<u>-</u>
<u>4000</u>	X10	<u>3997</u>	<u>-</u>
<u>40k</u>	X100	<u>39971</u>	<u>-</u>
<u>400k</u>	X1000	<u>399723</u>	<u>-</u>

## Voltage Plateau

Source isotope/serial number: CS-137 <sup>0.89 uCi</sup> 12/20/95 1 #4830

### BKGD PLATEAU

volts	20sec source counts	30sec Bg counts
<u>700</u>	<u>21137</u>	<u>921</u>
<u>750</u>	<u>27927</u>	<u>1649</u>
<u>800</u>	<u>31716</u>	<u>2482</u>
<u>850</u>	<u>34092</u>	<u>3337</u>
<u>900</u>	<u>36006</u>	<u>3804</u>
<u>950</u>	<u>36699</u>	<u>4070</u>
<u>1000</u>	<u>37478</u>	<u>4010</u>
<u>1050</u>	<u>37867</u>	<u>4183</u>

### SOURCE PLATEAU

volts	50sec source counts	50sec Bg counts
<u>1100</u>	<u>38197</u>	<u>4199</u>
<u>1150</u>	<u>37926</u>	<u>4253</u>
<u>1200</u>	<u>38001</u>	<u>4273</u>

operating voltage selected: 1000 V

# Ludlum Model 2221/44-10 Calibration

page 2 of 2

Model 2221 serial number: 127242

Probe 44-10 serial number: PR 168144

Date: 11/28/05

☒ window verified at about 3830

Instrument BKGD		Unshielded	6" Shielded	
1 minute BKGD counts				
<u>4234</u>	<u>4369</u>		<u>950</u>	<u>951</u>
<u>4417</u>	<u>4487</u>		<u>1009</u>	<u>988</u>
<u>4266</u>	<u>4381</u>		<u>981</u>	<u>981</u>
Average: <u>4359.0</u>			Avg: <u>976.7</u>	

Source Block Data		Source block ID: <u>2012-SV17A</u> <u>2012-SV27A</u> <u>2012-SV37A</u> <u>2012-SV47A</u>	
1 minute Source Block counts			
<u>23844</u>	<u>24159</u>	<u>8747</u>	<u>8612</u>
<u>24004</u>	<u>24136</u>	<u>8956</u>	<u>8793</u>
<u>24268</u>	<u>24109</u>	<u>8721</u>	<u>8975</u>
Average: <u>24086.7</u> cpm		Avg: <u>8800.7</u>	
Net Average: <u>19727.7</u> cpm		Net Avg <u>7824.0</u>	

Activity Calculation	
Net Average source count rate of: <u>19727.7</u> cpm	
divided by 10 = <u>1972.77</u>	
Times <sup>7.16"</sup> <sub>7.2</sub> = <u>14006.67</u> (A)	(A) <u>5555.04</u>
Square root of (A) = <u>118.35</u> times 2 = <u>236.7</u> (B)	(B) <u>149.06</u>
(A) plus the average BKGD = <u>18365.67</u> CPM/ <sup>7.16"</sup> <sub>7.2</sub> pCi	→ <u>6531.74</u>
The cutoff value is: <u>18,129</u> (CPM/ <sup>7.16"</sup> <sub>7.2</sub> pCi minus (B))	<u>6383cpm</u>
Unshielded	6" Shielded

Calibration performed by: <u>GLH</u>	DATE: <u>11/28/05</u>
Calibration approved by: _____	DATE: _____